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VOLUME XIII

NUMBER 1

January, 1948



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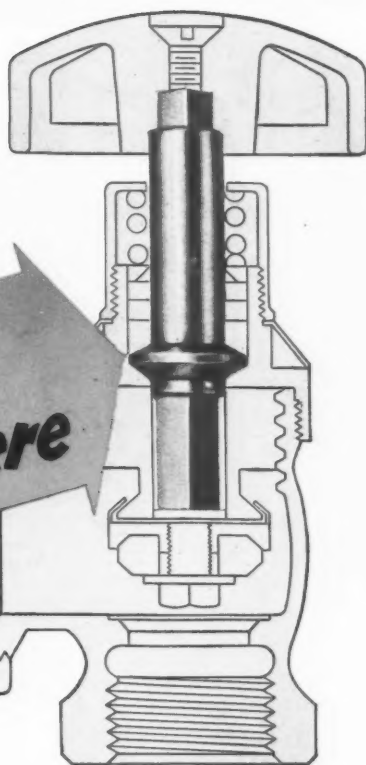
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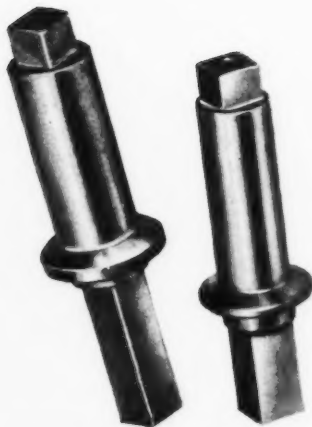
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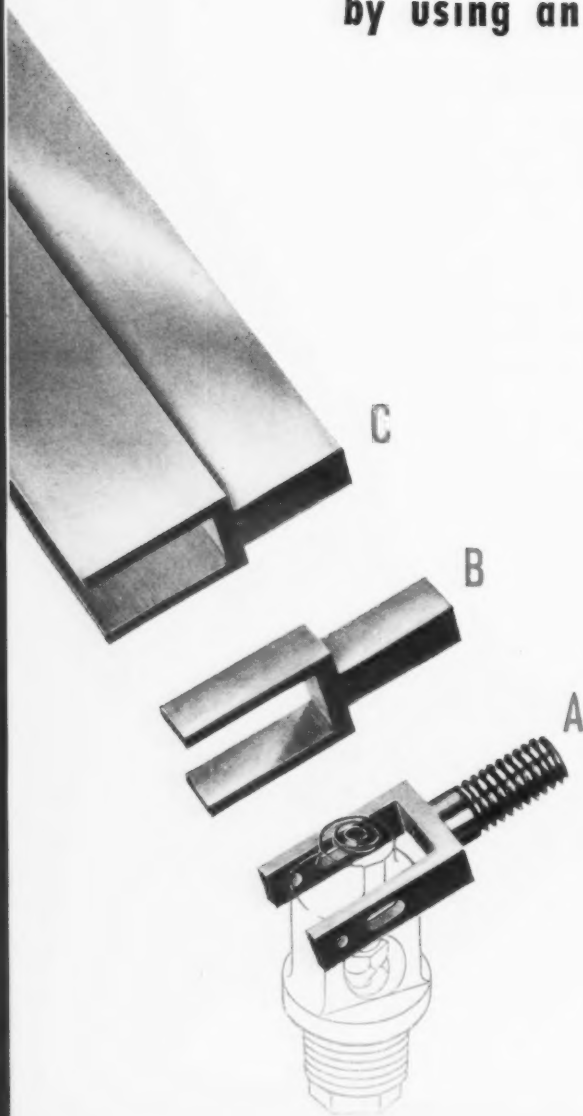
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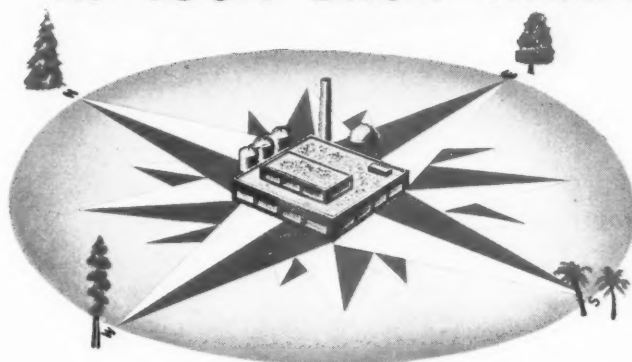
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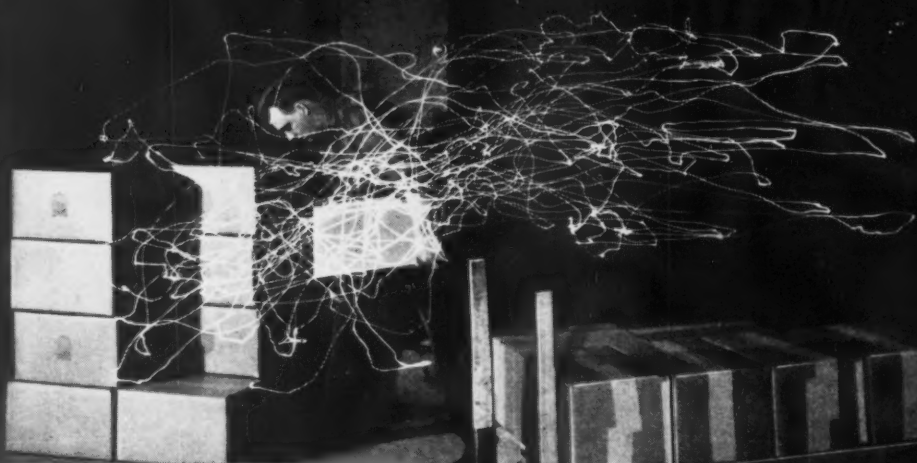
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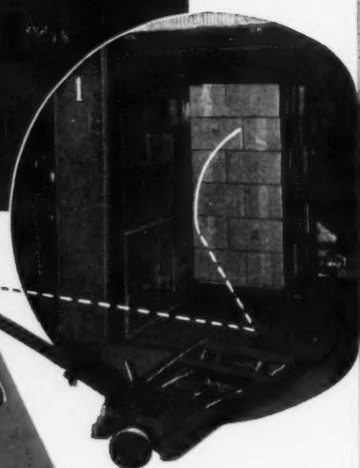
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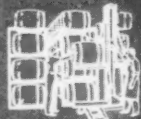
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This Month in WESTERN INDUSTRY

VOLUME XIII

JANUARY, 1948

NO. 1

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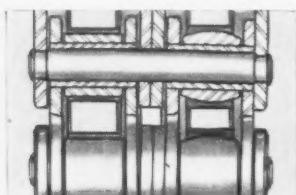
Front Cover

Despite its glitter, movie-making still calls for the hard work, hard cash and hard headedness of any industrial giant. This shot, taken during MGM's filming of "Cass Timberlane," shows Spencer Tracy and Director George Sidney at top of stairs, Cinematographer Robert Plank walking down, Lana Turner at foot.

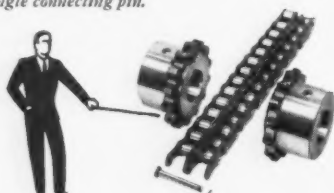
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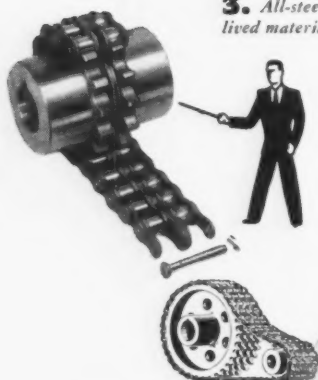
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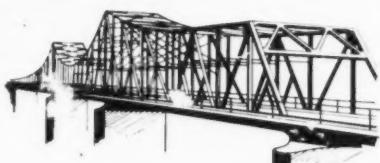
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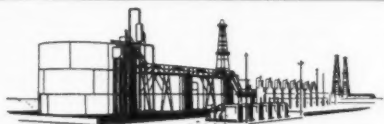
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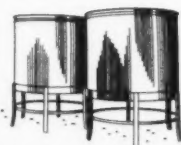
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In Our Mail Box

Time Card Controversy

Editor, *Western Industry*:

Relative to Mr. Thorpe's idea for simplifying a time card for small plant operation and controlling cost thereby, we would like to say that the idea of simplification of time card records appeals greatly to us.

Basically the idea as submitted by Mr. Thorpe is similar to the system we use in our own plant, except that I believe we have a tighter control than that described by Mr. Thorpe. In our system, we use two cards. One card is what we refer to as a gate card and is used for payroll purposes only. The other card is what we refer to as a job card or a cost card and a separate card of this type is used for each individual job on which a man works in the shop. Mr. Thorpe starts out with one card for all of the purposes but really ends up with separate cards as he separates his cards in various pieces as described in the article.

The part of the time card under Mr. Thorpe's plan that would be sent to the payroll department does not show the actual clock punches but would have only the number of hours worked per day written in by someone in the clerical department. It would seem that this might be unsatisfactory in the event of a question at some time regarding the number of hours for time worked in any specific period of time by an employee. For example, assume a man made claim that he had actually been on the job and had worked a half hour overtime during a certain period and he had been paid only for eight hours at straight time. The records should be available to prove the point definitely one way or the other and to do so without excessive cost of digging up the actual time card punches.

Nevertheless, there does appear to be merit in this form of idea and we appreciate the opportunity to study it.

J. B. HOXIE, Plant Supt.
Oliver United Filters, Inc.
Oakland 1, Calif.

Following is Mr. Thorpe's reply to Mr. Hoxie's comment given above:

"Unfortunately, Mr. Hoxie appears to have missed the significance of the time card I have proposed, for he states that 'under Mr. Thorpe's plan (the part of the time card) that would be sent to the Payroll Department does not show actual clock punches . . .'

"That is what this arrangement *does* do. Reference to the article will show that in the block illustrating the time card there is, on the left, an accompanying description thus: 'At the beginning of each shift the employee will clock in at G.' This point G is included in the part that goes to the payroll department. Later on the statement is made that 'This procedure is followed for each assignment until the end of the shift, at which time the employee clocks out at L . . . as well as at LL (for ending the payroll time)'. Thus payroll time and job time should always be in agreement."

"The procedure advocated by Mr. Hoxie is employed by many firms. It is open to criticism both from accuracy (cards actually punched at two different times and at two different places, etc.) and from excessive clerical time to double-check (sometimes by persons not technically equipped to do so). It was to eliminate these bad features, but — more important — to also improve the control of time by placing it at the front line of production, that this coordinated time card was suggested."

(Continued on page 11)

EDITORIAL COMMENT

Saving the Farmer

AGRICULTURE is a very hardy industry to have survived all the patent medicines that have been poured down its throat in Washington by Republican and Democratic administrations alike in an effort to make it financially prosperous. Most of these efforts seem about as sensible as putting waterwings on a puppy before encouraging it to go out into deep water after a stick.

Some timely thoughts regarding agriculture have been expressed by the committee on agricultural policy of the Association of Land Grant Colleges and Universities, which recently issued a study on the long-run effects of price maintenance policy for agricultural products. H. R. Wellman of the Giannini Foundation of Agricultural Economics, University of California, is a member of the committee, and R. R. Renne of Montana State College was appointed to the committee subsequent to the preparation of the report.

"Farmers need to be realistic," says this report, "concerning the superficially attractive plan of propping up prices for particular commodities above the level the market otherwise would pay. They cannot expect to retain the right to produce freely if they insist that the government maintain prices at arbitrarily high levels. When the government props up the prices over a period of time, it becomes necessary for agents of the government in their control of production to determine not only the total production but also to assign to each farmer his production allotment. This latter procedure is particularly hard to defend and administer when it involves refusing new producers the opportunity to engage in a type of production they are as well or better able to carry on as those already in the enterprise.

"There is need for realism, too, on the point that an adjustment program for agriculture alone cannot achieve satisfactory results. If agricultural surpluses accumulate because of inadequate urban purchasing power, the only real cure is an expansion of non-agricultural employment. If there are more people in agriculture than are needed to provide farm products, the remedy is not to support those farmers who are deepest in trouble permanently on the land, but rather to develop useful outlets for their energies in non-agricultural lines."

Consequently it is refreshing to observe how cling peach growers and canners in California, instead of waiting for a period of distress and then expecting someone to throw them a life-preserver, are jointly taking a self-supporting course now, while conditions are good, to insure that they will be adequately paid for the peaches they grow and process. They each assess themselves \$1 a ton a year for an advertising and sales promotion fund, which figures out to about 5c a case or .002c a can, but totals up to \$1,000,000. They are now entering the second season of a four-year campaign.

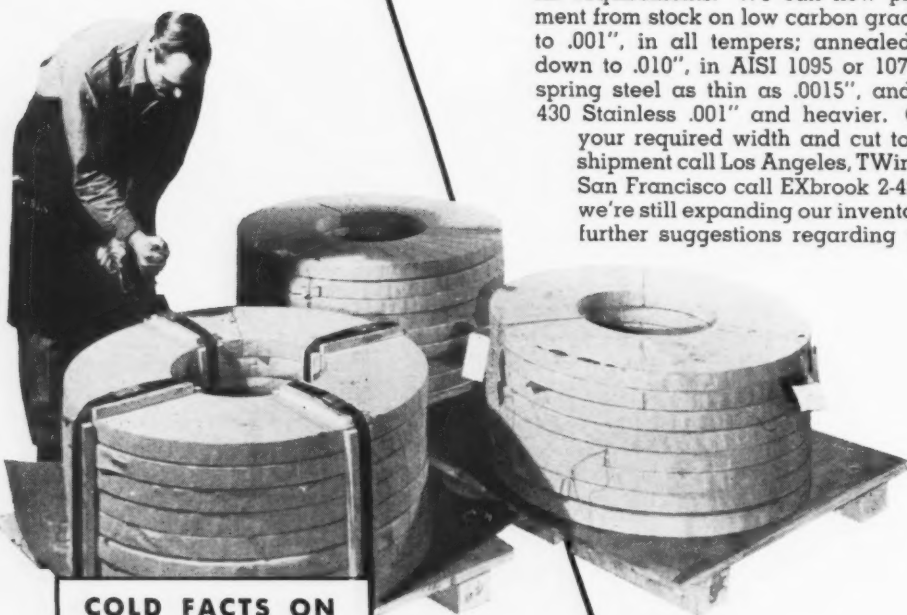
Although it will obviously take four or five years to attain a desirable objective, some early straws in the wind are interesting. For example, cooperative advertising and merchandising work in related-item promotions with General Mills, Kraft Foods, Carnation Company and National Biscuit Company has shown that a retailer who will tie in fully can usually more than double his turnover of the related items featured. Again, a large retailer in Chicago reported that his sales of canned peaches in the three weeks following the first full-page color newspaper advertisement ever run by California's cling peach industry had doubled the sales of the preceding nine weeks.

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(Continued from page 9)

Editor, Western Industry:

The consensus of our Production Accounting and Planning Departments is that Mr. Thorpe's ideas ("Tooling Up to Control Production Costs," October, 1947) are very good and are in accordance with our practice in this matter. The article is quite thought provoking, and was of interest to our people.

B. C. ESSIG
Gardner-Denver Company
Denver, Colorado.

Editor, Western Industry:

A quick glance over the subject matter of the article on production in the November issue of your magazine, indicates that Mr. Thorpe has handled the matter very well. The points covered are so basic and widely accepted that there is no question that they would be helpful to any small manufacturing plant which has not previously used these methods.

My past experience in manufacturing has all been in the automotive industry and as you probably know, the chief concern of production technicians in that business is to sustain uninterrupted flow of production materials. Any manufacturing unit with repetitive processes simply must be on that basis.

WALLACE O. LEONARD
Vice-President, Pacific Division
Pacific Airmotive Corp.
Burbank, Calif.

Editor, Western Industry:

I feel that Mr. Thorpe's approach to the question of production in small plants is the correct one. The greatest number of establishments in the West are small. It is to this group that articles of this kind should be directed. In general, large establishments have their own technical personnel, or can get outside assistance quite readily.

Referring to page 44, paragraph 2 (Nov. 1947 issue) on motion studies, it might be questionable if such studies can be profitable in small job shop plants. I believe that a work simplification program, in which the workers themselves participate, might be satisfactorily productive as well as more economical to the smaller shop.

Briefly stated, I think Mr. Thorpe's idea is very good.

LARRY MARINGER
Industrial Engineer
San Francisco Naval Shipyard.

Cost and Production

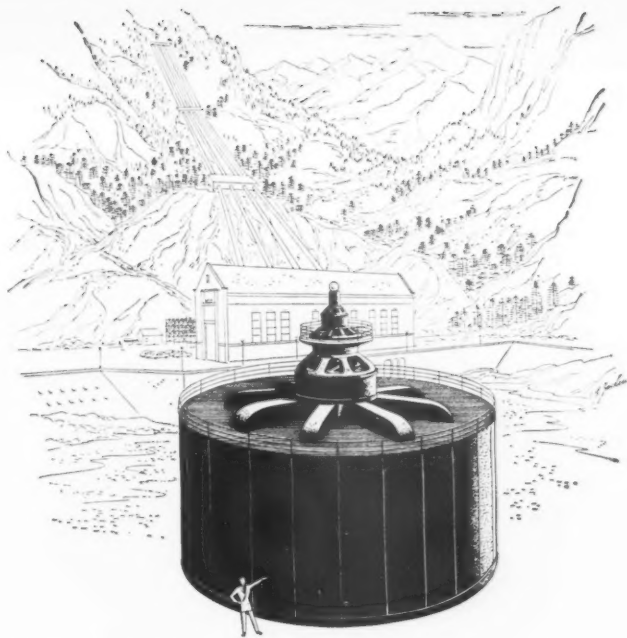
Editor, Western Industry:

The material procurement problem for production of automotive components on the West Coast bids fair to show much improvement in the future as to supply and cost. "Cost to produce" is the second greatest obstacle that must be overcome and this problem can become the most serious barrier to Western economic development.

First of all, we must recognize the fact that Pacific Coast industrial hourly wage rates rank among the top in the nation. Common labor in the metal trades is reported at \$1.20 for Cleveland and Detroit and \$1.07 for Los Angeles. Journeymen machinist rates are for Detroit \$1.75, Pittsburgh (Pa.) \$1.625, Portland, Ore., and Los Angeles \$1.60. Other trade and industrial classifications are in like relationship.

Hourly wage rates cannot be considered analogous to "cost to produce." The all-important element of "rate of production" must be considered as one of the key factors of production costs.

The production of automotive components at low-cost is dependent on three factors: (1) adequate quantities for long production runs, (2) high speed semi-automatic equipment, and



THE LIFE STORY OF GENERATOR 0-63000

You cannot buy a powerhouse by catalog order. You must have it built to specifications right from the ground up. Take the giant electric generators for example — they take months and years to build and assemble part by part. Here is the life story of generator 0-63000 long on order.

During the later part of 1949 it will be set in place in the new \$35,400,000 Rock Creek Powerhouse this Company is building on the North Fork of the Feather River in Plumas County. It will then be "tuned up" like a grand piano along with an identical unit dedicated to a life of spinning out 169,000 additional electric horsepower for Northern and Central California.

Generator 0-63000 will be more than two years old before it goes to work producing power. Factory fabrication time will take 21 months. Upon arrival at the Rock Creek Powerhouse, five months will be required for re-assembly and run-in tests.

Generator 0-63000 is one of fourteen new generating units this Company is now installing for new and enlarged hydro and steam electric powerhouses that are part of our present \$350,000,000 construction program.

Vital Statistics About Generator 0-63000

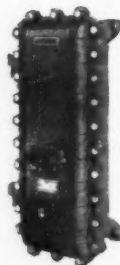
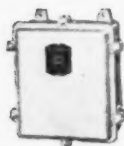
Weight	875,000 pounds
Width	30 feet in diameter
Height	53 feet from stator head to turbine wheel
Cost	\$617,145

P·G·and·E·

PACIFIC GAS AND ELECTRIC COMPANY

Ad No. WI-IX-148

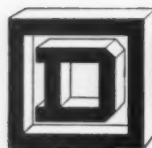
SQUARE D STARTERS FOR EVERY CONDITION



FOR EVERY JOB

MANUAL
AUTOMATIC
LINE VOLTAGE
REVERSING
MULTI-SPEED

Square D Starters are built to stand up under the most trying conditions. They are compact in design yet all enclosures provide ample wiring space. Each type provides maximum ease of maintenance. Contacts and coil can be changed with only a screwdriver. Inspection is quick and easy because current carrying parts are mounted forward in the box.



SQUARE D COMPANY

DETROIT MILWAUKEE LOS ANGELES

SQUARE D CANADA, LTD., TORONTO, ONTARIO • SQUARE D DE MEXICO, S.A., MEXICO CITY, D.F.

Advis

MAIL BOX— (Continued from page 11)

(3) skilled "know-how" in manufacturing methods and operation.

The Ford program is proceeding most satisfactorily from their standpoint, as Ford's greatest interest is in the practical development of permanent suppliers on a long-range basis rather than placing spot orders for current requirements. While the Ford program may not, under current production schedules, provide a full annual quota of capacity output for many southland plants, it does establish them as automobile parts suppliers, and it is fully expected that the other West Coast auto assembly plants, Buick-Oldsmobile-Pontiac, Chevrolet, Nash, Studebaker, Chrysler, Willys and others, will soon move into the Western market for their parts and the total volume of their requirements could reach an annual figure of several hundred million dollars of steady, year-in and year-out business.

"There's gold in them thar hills" if the approach to the problem is realistic and sound from a cost and production standpoint. It may mean a complete revision of the company's administrative and manufacturing setup as well as investment in new high-speed equipment; but hundreds of companies in other parts of the country are making the automotive-parts business pay dividends, and California industries can do the same thing.

C. S. BEESMYER, President
Los Angeles Chamber of Commerce
(Vice-President, General Petroleum Corp.)

Editor, Western Industry:

As you know I have been much interested in your excellent handling of the educational work on West Coast Automobile Parts manufacturing program, and in the "Mail Box" letters you present.

My experience as a manufacturers agent in Detroit dealing directly with the "big three" producers of autos, some 24 years ago, serves to confirm Mr. Kenneth T. Norris' comments, as published in the November issue of *Western Industry*.

His suggestions to the West Coast Manufacturers bear emphasizing and repeating—so I urge readers to refer to Mr. Norris' comments under the heading "The Suppliers Comment"—in our Mail Box column for November.

Keep up the good work!

ELLIOTT A. ALLEN
Mechanical Engineer
Johnson & Thomas Machine Works, Inc.
Los Angeles 11, Calif.

Sell in the West

Editor, Western Industry:

I thoroughly enjoyed your remarks about the silver award I received at our last convention. (Editor's Field Book Jottings, August, 1947.)

I am convinced that the mines of the West should market their metals in the West, and that fabricators should be encouraged to locate along the West Coast which would give us a wonderful opportunity to sell metals in Colorado.

ROBERT S. PALMER
Executive Director
Colorado Mining Association
Denver 2, Colorado.

No Exceptions

Editor, Western Industry:

While no exceptions should be made in regard to the rules for Native Sons of the Golden West (San Francisco Regional Review, November, 1947), it is splendid to have the opportunity to live and work here.

Thank you for your friendly expressions.

J. L. PERRY, President
Columbia Steel Corp.
San Francisco, Calif.

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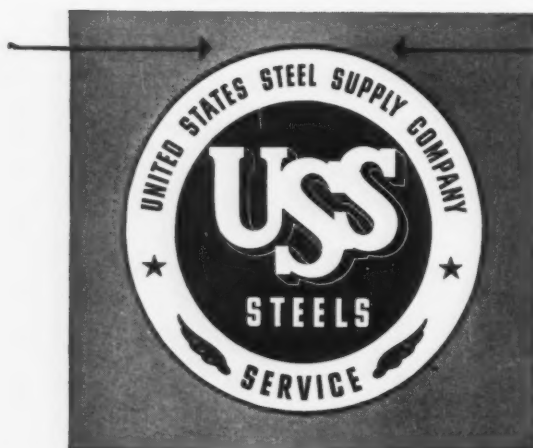
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UNITED STATES STEEL

THE WESTERN OUTLOOK..News...Statistics...

1

New S.S. funds now available to individual states for compiling of labor statistics; review of 1947 manufacturing employment shows business still booming — unemployment on decline except in seasonal occupations; carloadings for 10 months of 1947 above any year since 1942; electric power situation is still critical; meat prices soaring upward.

Employment Picture

FIVE of the 11 Western states have discontinued monthly labor statistical reports due to the Federal budget cut on July 1, 1947. Now these states may use Title Three funds made available by the Social Security Board to any state Unemployment Consultation Agency. This enables states to compile their own statistics with their own staffs, aided by Federal Bureau technical advice.

Idaho, Wyoming, Ohio, New Mexico and Colorado are the five who have not been reporting labor statistics. Of these five, only Oregon will not take advantage of the special funds available to them for this work.

In January of 1944, the United States Bureau of Labor Statistics received a special congressional appropriation for a new monthly statistical program of manufacturing and non-manufacturing employment by states. This was the first appropriation of its kind, although states had made individual reports, using state funds. However, these individual reports did not follow a scientific procedure, and were not carried on in a comparative manner, according to William A. Bledsoe, regional director of the U. S. Bureau of Labor Statistics, in San Francisco.

During the time Federal funds were available, the Western states cooperated with the Federal Bureau in compiling their

reports, with the exception of Oregon. Mr. Bledsoe declared that Arizona, Nevada, Washington and California have co-operated fully with the Federal Bureau. Oregon has notified the Bureau that they do not wish the Federal funds and will continue with their own staff in preparing their reports.

The following Western states are receiving the Social Security funds: Washington, California, Nevada, Montana, Utah and Arizona. New Mexico will join the group in January, closely followed by Colorado, Wyoming and Idaho.

In the meantime, readers of *Western Industry* must be content with incomplete, comparative employment statistics for the 11 Western states.

* * *

Reviewing the 1947 manufacturing employment situation, it is evident that business is still booming, and that unemployment, except in seasonal occupations, is on the decline. There was a slight drop in employment in March and May, but the figures for October and November show a steady increase, which tends to indicate an excellent record for December.

Employment estimators in California have maintained a pretty good record for accuracy this past year.

In the first nine months, prophecies made each month in advance of actual calculations have not varied from the sub-

sequently established result more than 1.7 per cent at any time. In five of the nine months, the realization was slightly higher than the projection, in the other four slightly lower. June and July were the last months in which employment failed to come up to the projected level. Since then the estimates have been too low by modest margins.

Lumber and construction activities account for Oregon's good employment. It is predicted that 1947 bids fair to exceed the 1946 record, and may reach the all-time high of 1944. Mainly responsible, however, for the quick recovery from the 1945-46 sharp slump have been the trade, financial and service groups, although construction and lumbering activities recorded consistent if less spectacular gains.

The employment level remains high in Utah, probably higher than at any other time in the state's history, and reflects an equally high rate of economic activity. Employment in manufacturing shows little change as sugar factories and poultry processing plants begin their annual runs.

Manufacturing employment remained steady in Nevada, while the number of amusement and recreation employees dropped considerably.

Shortage of housing for workers accounts for the slight decline in the manufacturing group of non-ferrous metal industries in Montana, and metal mining

MANUFACTURING EMPLOYMENT

Estimated Number of Employees in Non-Agricultural Establishments—Source: U. S. Bureau of Labor Statistics

	MONTANA		IDAHO		WYOMING		COLORADO		NEW MEXICO		ARIZONA		UTAH		NEVADA		TOTAL MTN.	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
April	14,000	16,600	17,300	.....	5,500	.....	47,800	.....	8,600	.....	11,200	13,800	17,900	23,510	2,900	3,700	.....	.....
May	15,400	17,100	17,400	.....	5,400	.....	47,800	.....	8,700	.....	11,100	13,100	18,300	24,110	3,400	.....	.....	.....
June	15,700	17,800	.....	.....	.....	.....	.....	.....	.....	.....	11,100	13,200	.....	25,020	.....	.....	.....	.....
July .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,000	12,700	.....	29,810	3,200	4,000	.....	.....
August .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,500	12,700	.....	29,620	3,400	4,000	.....	.....
September	16,900	18,100	.....	.....	.....	.....	.....	.....	.....	.....	12,500	12,700	.....	30,820	3,400	3,700	.....	.....
October .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,170	3,400	3,700	.....	.....	.....

	WASHINGTON		OREGON		CALIFORNIA		TOTAL PACIFIC	
	1946	1947	1946	1947	1946	1947	1946	1947
May	163,300	164,900	111,800	117,100	655,300	691,600	858,000	973,600
June	170,200	170,800	125,005	133,571	665,200	688,200	960,405	992,571
July	176,900	176,500	121,000	.....	700,700	703,800	.....	.....
August	177,300	185,000	.....	.....	740,900	758,900	.....	.....
September	179,400	191,700	135,846	143,450	738,800	743,600	1,048,646	1,078,750
October	175,400	183,900	.....	.....	725,700	734,300	.....	.....

INSURED UNEMPLOYMENT

(Under all programs: figures in thousands. From Social Security Board)

Week ending	Ariz.	Colo.	Idaho	Mont.	Nev.	N. Mex.	Utah	Wyo.	Total Mtn.	Calif.	Ore.	Wash.	Total Pacific
April 5	1.5	8.5	4.8	6.3	2.3	6.2	5.3	1.6	42.5	268.5	20.8	40.8	350.1
April 12	6.9	7.1	3.1	3.5	2.0	4.4	3.7	.9	31.6	251.9	16.3	33.9	302.1
June 6	6.2	5.4	2.1	2.1	1.6	3.7	2.7	.6	23.4	226.0	11.5	25.7	263.2
July 5	4.9	5.0	1.4	1.8	1.6	3.3	3.4	.4	21.8	217.9	15.5	23.4	256.8
August 2	6.8	5.3	1.7	1.5	1.6	3.0	3.7	.5	23.9	206.2	13.6	26.4	246.2
Sept. 6	5.7	4.1	1.2	1.4	1.4	2.1	3.4	.3	19.6	164.4	10.9	24.5	199.8
Oct. 4	4.3	2.5	.7	1.1	1.3	1.7	2.3	.2	14.1	138.3	8.4	21.3	168.0

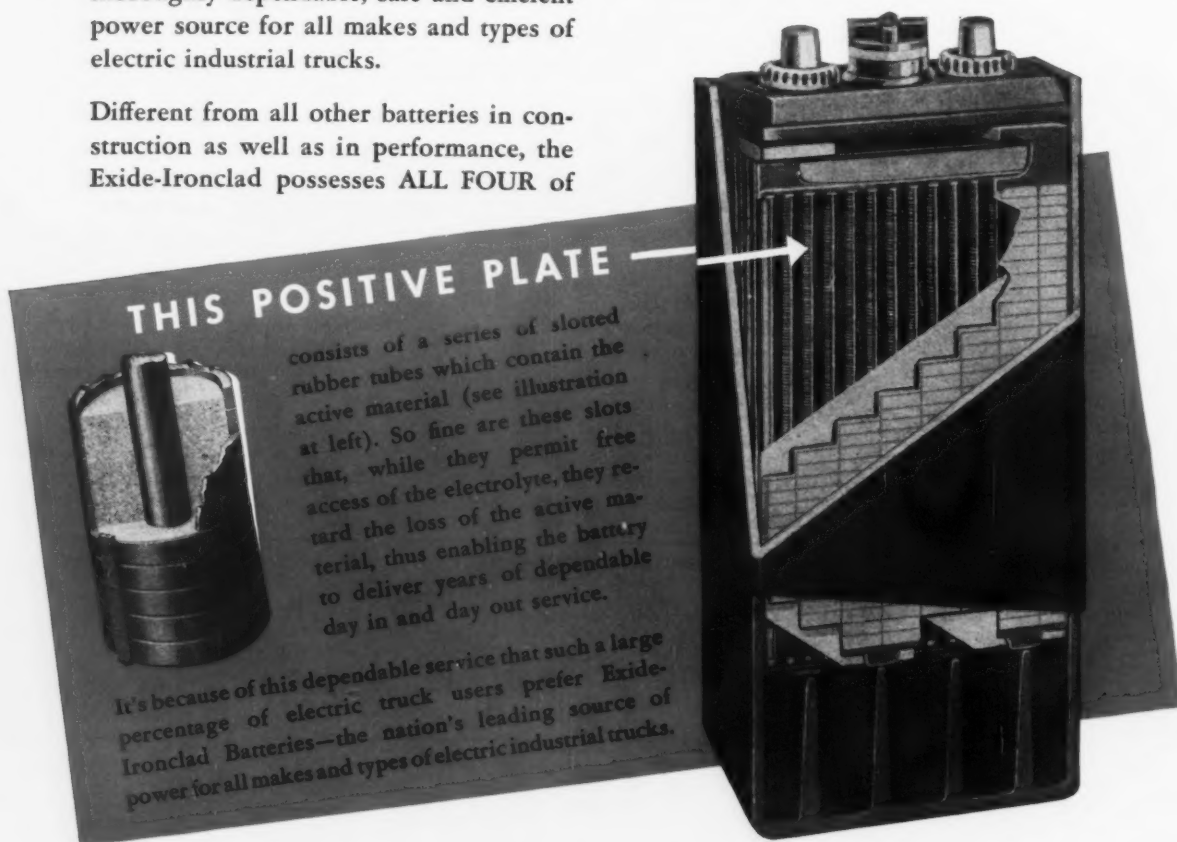
USERS EXPRESS PREFERENCE FOR **Exide** IRONCLAD BATTERIES

IN a recent national survey made by a leading industrial publication, 81.1% of electric industrial truck users expressed a preference for Exide-Ironclad Batteries.

Such overwhelming preference for the Exide-Ironclad Battery is based upon user experience. This unique battery has, during the past 35 years, proved itself to be a thoroughly dependable, safe and efficient power source for all makes and types of electric industrial trucks.

Different from all other batteries in construction as well as in performance, the Exide-Ironclad possesses ALL FOUR of

the essential characteristics demanded of a battery for electric industrial truck service—(1) high power ability, (2) high efficiency, (3) great ruggedness, and (4) long life. These characteristics are due to the special construction of the Exide-Ironclad Battery, especially its rugged, tubular positive plate.



THIS POSITIVE PLATE

consists of a series of slotted rubber tubes which contain the active material (see illustration at left). So fine are these slots that, while they permit free access of the electrolyte, they retard the loss of the active material, thus enabling the battery to deliver years of dependable day in and day out service.

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Write for further particulars and FREE copy of Exide-Ironclad Topics, which covers latest developments in material handling and shows actual case histories.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto
LOS ANGELES SAN FRANCISCO DENVER SEATTLE

THE WESTERN OUTLOOK..News...Statistics...

2

employment has grown steadily in this state, from last year's level. Moderate increases in employment in lumber and food industries over September, 1946, are evident.

Despite the seasonal drop from September, employment in Washington in October was 14,500 above that of a year ago. In most industries, other than seasonal ones, employment is equal to or greater than that of a month ago. Slight drops were noted in the manufacture of machinery, iron, steel and their products.

About 1,400 more persons were employed in the manufacturing of transportation equipment at mid-October than a month earlier. This increase was almost entirely in the aircraft industry—shipyards are still declining in employment. Employment in the aircraft industry will probably continue to increase. At the middle of October, employment in the lumber industry and in wood products manufacturing was still increasing.

Arizona employment in October showed a slight gain over a year ago although manufacturing employment decreased .8

per cent from September to October and the same percentage from October a year ago. Within the manufacturing industry, the largest decrease of 5.4 per cent was in food and kindred products, while lumber and timber basic products decreased 3.9 per cent from September and dropped 8.7 per cent from October a year ago.

The foretelling boys who claim to read the future declare 1948 will be a prosperous one for both labor and management. *Western Industry* joins in, not to predict, but to wish its readers a prosperous and peaceful 1948.

Commerce and Banking

Carloadings in Pacific Northwest Advisory Board territory for the first 10 months of 1947 are slightly above any year since 1942. The total of 1,080,369 cars is 104,140 cars above same period in 1946 and only 57,050 cars below 1942. Lumber and forest products also ranked above any year since 1942, while fruits, which have been gaining steadily since 1943, totaled 49,747 cars, about 10 per cent above 1946. Miscellaneous products, which dropped off sharply in 1946 from the previous record of 1945, slightly topped 1945 in the comparative period of 1947.

Wholesale sales on the Pacific Coast in the first nine months of 1947 were 18 per cent

above the same period in 1946, compared to a 21 per cent increase for the entire country. The Intermountain states led the nation with a gain of 28 per cent. Department store sales show some lag from the 1946 level.

Of all industries and businesses studies for the Pacific Northwest made by the University of Washington Bureau of Business Research, all but four showed increases over corresponding months of 1946, and the Pacific Northwest as a whole showed an increase of 12.9 points over 1946.

Power and Fuels

Crucial nature of the December peak period for public utility companies in the West was perhaps best illustrated in San Diego, where page advertisements warned users that they might be short if a line went down or any other accident occurred. The expected peak demand was 200,000 kilowatts, with available supply of 204,000 kw., of which 137,000 was supplied locally and the rest imported from Southern California Edison. The rest of southern California was somewhat better off, but Arizona was hanging on the edge, with most of its power coming from Southern California Edison.

In northern California, Pacific Gas & Electric was in the position of supplying power to California Oregon Power Company and in exchange receiving energy off-peak from COPCO. The latter in turn was supplying 23,000 kw. to the Willamette Valley operations of Mountain States Power Company, who were also expecting to get 10,000 kw. additional from Bonneville. The Puget Sound area was also receiving some help from Bonneville, and the Seattle area may get some relief in the next few months from Ross Dam on the upper Skagit. Idaho Power Company has plans for 150,000 kw. additional to be developed.

Scarcity of pipe is slowing pipeline construction which could rectify local shortages of fuel in many cold-weather areas. Spotty distribution

WHOLESALES' SALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

MOUNTAIN				PACIFIC			
Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Gen. and foods ex. farm prod.	Change
Mar. 860	+35	2,577	+125	...	...	3,862	+10
Apr. 720	+28	2,910	+147	...	...	2,743	+11
May 681	+10	3,007	+140	...	...	3,559	+6
June 700	+16	3,031	+159	...	...	4,097	+16
July 727	+14	2,915	+95	...	...	3,783	+21
Aug. 631	+7	3,653	+52	...	...	3,880	+10
Sept. 396	-7	3,552	+75	...	...	4,337	+16
Mar. 2,964	+19	9,877	+128	1,430	+9	11,886	+9
Apr. 3,193	+18	10,077	+149	1,635	+1	11,775	-5
May 2,930	+9	12,158	+109	2,640	+53	10,425	-3
June 2,580	+5	11,055	+108	1,221	+127	12,036	+19
July 2,932	+4	10,528	+63	1,617	-7	11,890	+19
Aug. 1,266	+1	12,078	+34	1,536	+21	7,780	+10
Sept. 3,211	-4	14,718	+40	3,545	+37	13,729	+19
Industrial Supplies	Change	Lumber & bldg. mat.	Change	Mchy., equip. and supplies excl. elec.	Change	Metals	Change
Mar. 2,188	+35	1,590	+64	1,060	+25	673	+30
Apr. 1,995	+30	1,604	+46	994	+15	...	...
May 249	-3	1,223	+6	729	+27	...	...
June 390	-12	1,206	+45	828	-7	600	+1
July 1,594	-8	1,099	+26	704	-8	739	+4
Aug. 1,481	-25	1,341	+34	664	+9	696	-1
Sept. 520	-9	1,587	+63	431	+9	799	-4

INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th		Southern California		Northern California		Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
April	292	315	321	340	260	281	275	297	309	324	250	320	286	313	320	363
May	305	323	315	349	281	287	294	315	355	360	282	308	278	279	344	365
June	316	310	341	342	282	284	280	311	350	349	280	305	300	294	375	400
July	322	329	336	343	292	296	316	299	367	368	287	297	331	349	385	388
August	324	338	330	351	286	296	298	317	364	372	325	362	361	363	439	473
September	313	321	327	339	285	289	295	314	334	339	296	315	319	312	432	442
October	319	324	349	349	284	286	288	325	353	363	276	286	301	294	346	374

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings		Received from Eastern Connections	
	1946	1947	1946	1947
April	447,932	525,144	237,236	279,392
May	566,795	685,897	297,239	361,084
June	554,501	565,274	267,951	272,144
July	717,235	755,983	343,600	331,613
August	694,085	728,578	374,898	381,068
September	402,592	825,668	394,409	404,771
October	786,228	701,972	398,11	382,413

*5-week period.

BANK LOANS

Industrial, commercial and agricultural (In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 Western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

May	1,189
June	1,188
July	1,698
August	1,742
September	1,824
October	1,857
November	1,899

BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average for month, all member banks in 12th Federal Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

	Net Demand Deposits	Time Deposits
April	8,349	5,854
May	8,344	5,861
June	8,439	5,885
July	8,439	5,899
August	8,096	5,909
September	8,813	5,920
October	8,905	5,949

*NET Demand Deposits are now listed instead of Demand Deposits adjusted, U. S. Gov't war loan deposits no longer reported exempt from reserve requirements.

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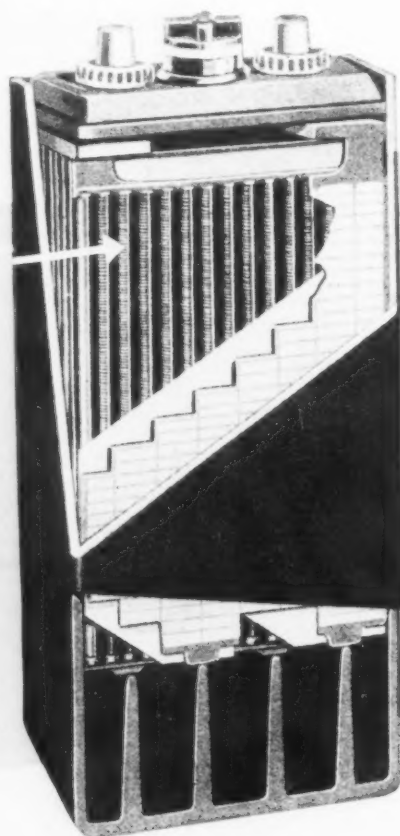
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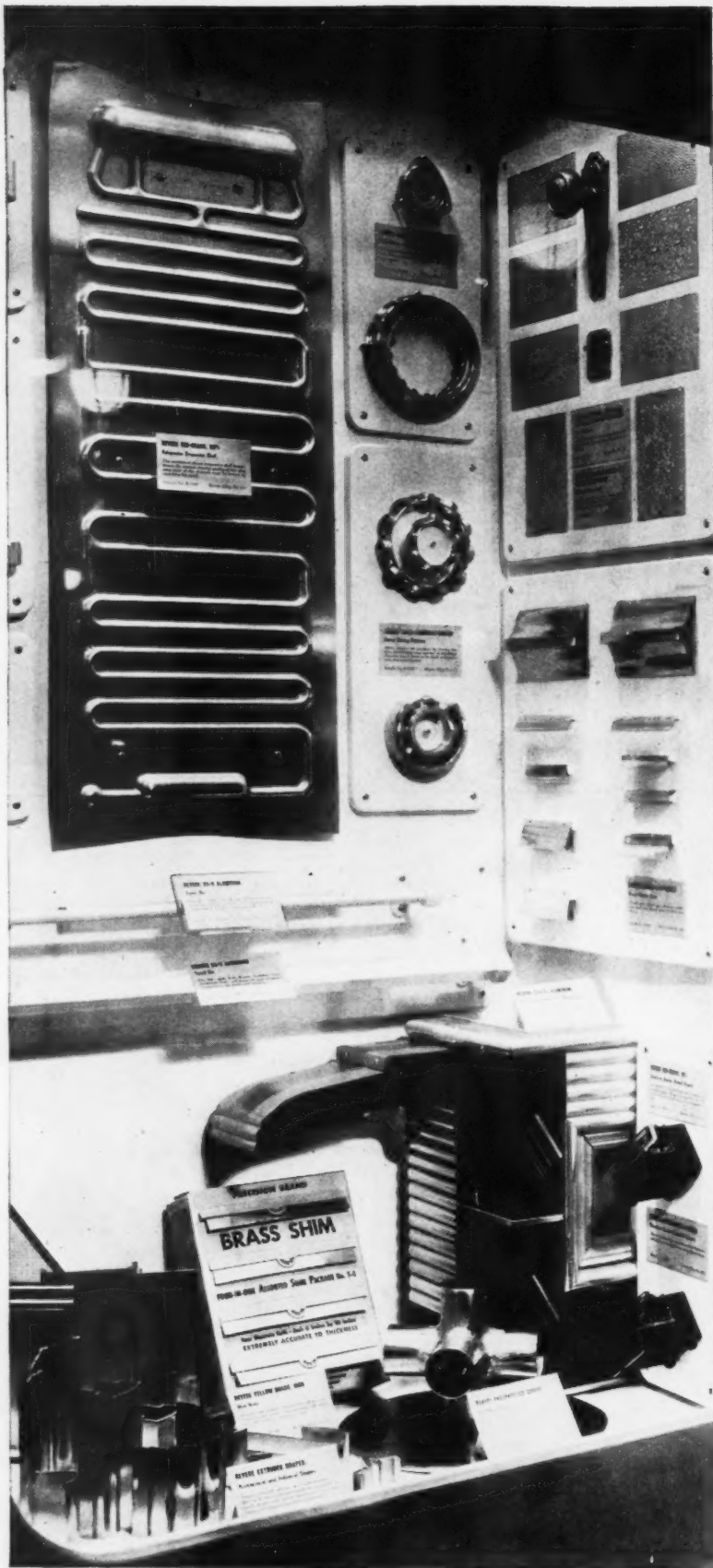
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THE WESTERN OUTLOOK...News...Statistics...

3

of petroleum products throughout the nation is enforcing allocations of oil to dealers.

Eastern consumers have been warned not to convert from coal to oil without absolute assurance of supply—something virtually impossible to obtain. The pipe shortage also is cramping development of new fields. One company has cut its drilling schedule 50 per cent for lack of tubing and casing.

Prices of crude oil have been advanced as predicted in this department last month, with increases on the Pacific Coast ranging from 12c per barrel for heaviest grades down to one cent for lightest. Refined products were raised slightly, from 0.1c a gallon on gasoline and kerosene to 5c a barrel on industrial fuel oils.

U. S. duties on import of gasoline, naphtha, and paraffin wax have been cut 50 per cent in return for tariff concessions by other nations. Crude oil was unaffected by the Geneva international agreements. Various other nations lowered duties on asphalt, some mineral oils, lubricating oils and greases.

Motoring last fall continued heavy. Taxable sales of motor vehicle fuel in the five Pacific Coast states in September amounted to 371,084,069 gallons, as against 324,212,245, a gain of 14 per cent.

The number of industrial consumers of natural gas in California declined by more than 200 from January to June, 1947, but the volume of gas consumed for industrial use increased by nearly 50 per cent. The number of domestic and commercial consumers shows a steady gain each month for the period.

Data compiled by American Gas Assn. from a sample group of utilities in the Coast and Mountain states show the following changes between the second quarter of 1946 and 1947:

Three companies accounting for 89 per cent of the natural gas business of the entire Pacific Coast showed a gain over the same period in 1946 of 91,946 residential customers, or 4.9 per cent; a gain of 4,575 commercial customers, or 6.4 per cent; but a loss of 114 industrial customers, or 2.1 per cent. Residential sales fell off 5.5 per cent in volume and commercial sales also dropped 6.9 per cent, but industrial sales increased 22.3 per cent. The number of manufactured gas consumers was 529 less, but there were 890 more commercial accounts and 33 more industrial. Sales gain was slight.

In the intermountain area, 13 companies accounting for 74 per cent of the natural gas sales and 74 per cent of the customers showed a gain of 21,748 residential consumers of natural gas in the same comparative period, or 9.1 per cent, and 3,719 commercial consumers, or 13.9 per cent. There were only nine more industrial consumers, a gain of 0.7 per cent. Sales showed a generous increase all along; however: residential, 32.7; commercial, 33.9; industrial, 30.9.

Intermountain coal production is still lagging, primarily because of the railroad car shortage. Utah commercial mines, for example, are producing at a rate about 30 per cent under the corresponding period last year. The trend, however, is slightly upward as the sugar beet harvest releases cars for the coal haul.

Steel

Some relief to the scrap situation is expected through the wrecking of 40 LSTs, of which nine were recently sold to Kaiser, 10 to Basalt Rock Co. and the rest divided between Southwest Steel Corporation of Pittsburgh, Pa., and New Orleans Shipwrecking Co. of Chicago, who expect to establish wrecking facilities in the San Francisco Bay area. Wrecking operations will also be started at the Pollock shipyard in Stockton by Walter Johnson, who has

ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1946	1947	1946	1947	1946	1947	1946	1947
April	893,982	1,012,461	882,232	1,352,310	1,374,077	1,597,737	2,356,309	2,950,077
May	976,801	1,068,190	989,436	1,346,351	1,407,259	1,674,755	2,456,695	3,021,106
June	1,085,393	1,263,666	1,075,075	1,363,334	1,540,325	1,759,504	2,615,400	3,122,038
July	1,005,000	1,154,831	1,000,953	1,286,233	1,628,605	1,848,005	2,629,558	3,134,258
August	982,553	1,102,713	1,088,455	1,344,586	1,700,150	1,823,537	2,788,605	3,168,123
September	924,999	1,081,065	1,109,086	1,325,425	1,517,003	1,695,630	2,656,089	3,021,055

PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)

(From Bureau of Mines)

TOTAL DELIVERIES

(Thousands of barrels daily)

	CRUDE PRODUCTION (Barrels, daily avg.)		GASOLINE		GAS OIL & DIESEL		HEAVY FUEL OIL		ALL PRODUCTS	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
April	906,317	912,376	274	336	101	125	376	385	851	988
May	914,215	914,215	323	332	78	85	351	357	864	912
June	918,239	918,239	326	385	76	90	343	362	871	978
July	917,684	917,684	329	335	72	88	326	360	859	935
August	914,747	914,747	325	370	67	100	355	362	885	985
September	914,747	914,747	318	370	77	113	339	386	860	1,030

BITUMINOUS COAL AND LIGNITE

(In thousands of tons. From Bureau of Mines)

	(Colo.-N. Mexico)		(Wyoming)		(Utah)		(Montana)		(Wash.-Alaska)	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
April	25	430	25	498	14	488	176	196	38	108
May	308	487	362	568	248	632	233	242	55	98
June	503	523	444	608	472	560	300	150	118	107
July	464	298	615	345	548	394	293	182	114	71
August	573	490	736	530	566	504	275	255	122	104
September	679	628	745	650	590	513	343	274	124	116

NATURAL GAS

(CALIFORNIA)

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

	—Number of Consumers—		Domestic and Commercial Sales		*Utilization (in thousands of cubic feet)		Net Receipts from Producers	
	1946	1947	1946	1947	Industrial Sales	Electric Generation	1946	1947
Arg.-Jan.-Mar.	2,241,132	5,706	24,610,137	8,201,146	10,423,088	2,413,807	35,032,085	
April	2,259,234	5,699	15,816,523	10,757,685	11,257,170	2,929,004	28,954,642	
May	2,263,737	5,632	12,265,768	11,257,170			28,037,260	
June	2,269,636	5,515	10,852,056				26,465,777	

*Utilization figures do not include company use, storage, and unaccounted for.

heretofore done wrecking in a small way at the Graham Industries yards in Oakland.

Steel supply will be increased this spring when the new Columbia mill at Pittsburg gets into operation. The narrow strip and pipe mills at Fontana were expected to start supplying customers early in the year. Open hearth output at Fontana is increasing, with new records being set. Small amounts of pig iron are being shipped into southern California from the Lone Star Steel Co. mill at Daingerfield, Texas, under a Veterans Administration subsidy permitting supplying pipe plants, bathtub manufacturers and other preferred accounts for manufacturing

items for veterans' housing. Steel supply generally continues tight, with plates, sheets, nails and pipe in greatest demand, but alloys and stainless steel easy and wire rope plentiful. A formal bid has been submitted by Portsmouth Steel Corp. for the DPC blast furnace at Ironton, Utah, with other companies also interested.

Production of iron at No. 2 blast furnace at Geneva, out for some time because of shortage of coking coal, resumed early in December, giving hopes for more merchant iron for Western foundries. All four Geneva furnaces now going.

(Continued on page 21)

IRON AND STEEL

Western Area of the United States
From American Iron and Steel Institute (in net tons)

	Pigiron Output	Percent of Capacity	Steel Output	Percent of Capacity
April	177,849	86.4	337,054	84.6
May	191,345	90.4	369,243	89.8
June	186,364	89.3	352,215	88.4
July	177,150	82.4	340,322	82.9
August	204,153	94.7	358,691	87.2
September	188,749	90.7	350,937	88.3
October	193,489	89.8	378,227	92.0

Alloy Steel

	Output	Carbon Ingots, Hot Topped*
April	5,403	8,857
May	3,887	16,046
June	4,707	12,682
July	2,670	8,447
August	3,994	9,913
September	4,321	7,223
October	5,855	11,769

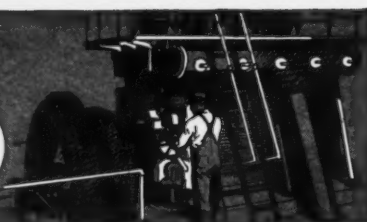
*Included in total steel.

COPPER

(Short tons. From U. S. Bureau of Mines)

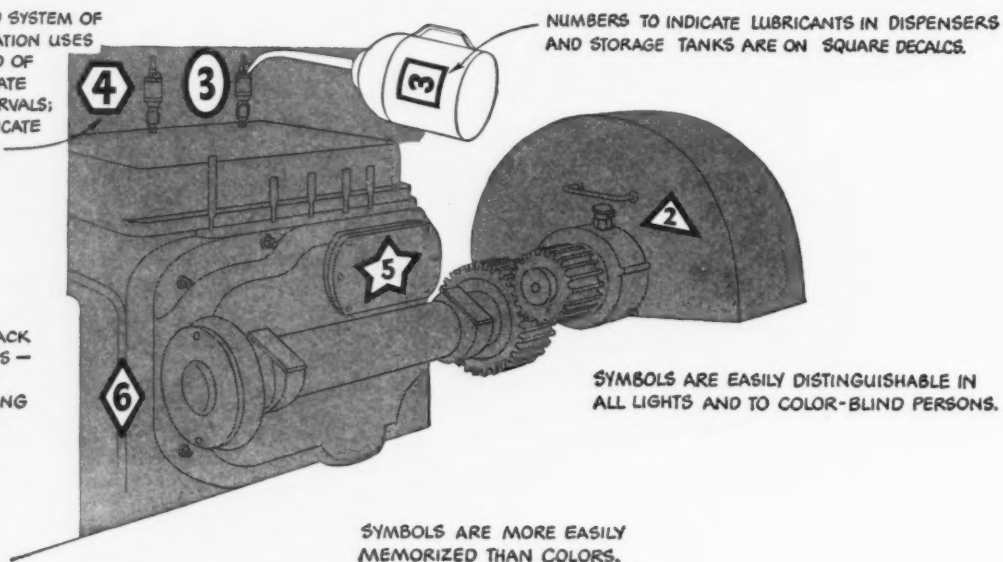
	ARIZONA		UTAH		MONTANA		NEW MEXICO		NEVADA		TOTAL 11 WESTERN STATES	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
April	16,400	30,200	500	23,500	5,300	5,200	4,287	5,471	4,800	4,050	28,513	68,853
May	16,350	31,000	500	25,000	4,800	4,800	3,906	5,368	4,350	4,600	30,682	71,180
June	15,800	30,000	400	26,000	4,700	4,700	3,993	5,400	4,675	3,000	30,643	69,160
July	25,700	32,000	12,350	23,500	4,750	4,800	4,404	5,400	2,100	4,040	51,027	70,012
August	26,475	29,870	13,780	23,620	4,950	4,160	4,098	5,930	3,300	4,430	53,481	68,735
September	28,000	29,800	17,350	23,200	4,700	4,000	3,961	5,810	3,400	4,160	54,233	67,731

STANDARD ENGINEERS NOTEBOOK



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FOR EVERY NEED A STANDARD OF CALIFORNIA JOB-PROVED PRODUCT

(Continued from page 19)

Non-Ferrous Metals

Non-ferrous metal production was steady during November, except copper which will show a decline because of a shutdown of several days at Kennecott Copper Corp.'s Utah properties arising from a strike of railroad workers. The loss is estimated at about 15,000 tons. All metals are currently in greater demand than supply. Underground mines are still short of manpower, lack of housing being a major contributing factor.

Aluminum supply which had the three producers worried last summer has swung to the short side again. Most mills have their books filled through February and were taking only March and April delivery orders early in November. Permanente Metals Corp. would like to open the sixth potline at Mead, but cannot get power deliveries. There have been indications that Reynolds would like to reopen its Longview, Wash., plant, although no official announcements have been made.

The Aluminum Company of America may be forced to close down the fifth potline of its Vancouver, Wash., plant. D. L. Marlett, assistant administrator of the Bonneville Power Administration, stated that Alcoa has been told that its short term power contract on which the fifth potline is operated cannot be extended after its expiration next spring.

Chemicals

Production figures on nine chemical items for 1946 in the eleven Western states have been released by the Bureau of the Census, as follows:

Item	No. of Producing Plants	Unit of Measure	Total Production
Carbon dioxide, liquid & gas	11	M pounds	12,361
Carbon dioxide, solid (dry ice)	14	M pounds	112,522
Chlorine, gas	5	Short tons	121,789
Hydrogen	13	Mill. cu. ft.	1,889
Nitric acid (100% HNO ₃)	6	Short tons	50,362
Oxygen	27	Mill. cu. ft.	1,036
Soda ash, natural (Na ₂ CO ₃ equivalent)	4	Short tons	209,411
Sodium hydroxide, electrolytic liquid (100% NaOH)	4	Short tons	110,383
Sulfuric acid, contact and chamber (100% H ₂ SO ₄)	16	Short tons	588,336

Lumber

A new record for the sale of Ponderosa pine was set at Klamath Falls late in October when the Klamath Lumber and Box Corp. offered \$26.76 per thousand for 85,000,000 board feet of Ponderosa and sugar pine on the Klamath Indian reservation.

Largest exchanges of timber holdings taking place during November involved the sale of privately owned timber. Rayonier, Inc., purchased the holdings of Polson Logging Co., including some 2,000,000,000 board feet of timber on the Olympic Peninsula in Washington, and the Ralph L. Smith Lumber Co. purchased 49,290 acres of timber land near Anderson in northern California from the Deschutes Lumber Co. Smith also secured cutting rights on 15,687 acres of timber land in the same area.

LUMBER

(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

Year through	1945	1946	1947
October Production	5,334,930	5,857,581	6,083,917

From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):

Year through	1946	1947
August Production	1,539,638	1,645,758

In the first sale under the year-old cooperative sustained yield agreement, Simpson Logging Co., Shelton, Wash., has purchased 8,000,000 board feet of Douglas fir, Western hemlock, Western Red cedar, and miscellaneous species. Under the terms of the agreement the sale was made without competitive bidding.

Orders and shipments of lumber both below production in November in Pacific Northwest, due largely to freight car shortage.

Plywood

According to the Oregon state postwar adjustment and development commission only 17 of the 33 plywood plants in Oregon and Washington have a life expectancy of more than 20 years based on the visible supply of raw materials (i.e., peeler logs). Nine plants will exhaust their timber supplies within 10 years and seven plants in 10 to 20 years unless they are able to obtain additional wood supplies.

SOFT PLYWOOD

From Bureau of the Census
(In thousands of square feet)

	1946	1947
April	120,152	148,027
May	128,489	141,752
June	121,412	139,623
July	95,734	104,487
August	126,631	137,042
September	129,270	146,985

Pulp and Paper

Pacific Paperboard Co., at Longview, Wash., has anticipated its planned expansion into the newsprint manufacturing field, scheduled for next year, by producing a limited amount of newsprint on a rebuilt paperboard machine. Although one issue of the Longview Daily News was printed entirely on local paper, the Pacific Paperboard newsprint plant is actually only in the foundation construction stage.

Puget Sound Pulp & Timber Co., Bellingham, Wash., plans to double the capacity of its new paperboard plant which is just now getting into production. Doubling the capacity will take 35 to 40 per cent of the company's pulp mill output, but the expansion will not be undertaken until machinery is more readily available.

PULPWOOD

(Pacific Northwest)

(Cords of 128 cu. ft., roughwood basis.
Source: Bureau of Census)

	Receipts	Consumption
April	403,316	267,911
May	457,888	269,966
June	578,510	265,892
July	362,477	344,851
August	395,124	269,009
September	459,427	264,641

Building Materials

Demand for cement for construction continues strong, accounting for more than highways and bridges at the present time, although the building of freeways next spring is expected to change the situation. Production of ceramic tile in September reached the highest rate in history, in California alone 1,630,406 sq. ft. being available, according to Tile Council of America.

Flour

Buying has been quiet on account of the uncertainty of the foreign situation and the possibility of controls being imposed. Orders have been on the hand-to-mouth basis. Pacific Northwest wheat is close to being completely sold out.

Sugar

Estimated national beet sugar production by the November 1 forecasts has been increased 40,000 tons of sugar raw value to a total of 1,900,000 tons. The California beet crop is turning out better than expected, with a record yield of 18 tons to the acre in sight, an increase

STRUCTURAL CLAY PRODUCTS

	UNGLAZED BRICK (In thousands of standard brick)	UNGLAZED STRUCTURAL TILE (Short tons)	VITRIFIED CLAY SEWER PIPE (Short tons)
April	12,333	17,467	2,257
May	13,780	24,355	2,687
June	14,702	26,503	2,706
July	13,740	29,098	2,325
August	14,807	31,623	3,750
Sept.	12,168	28,267	3,814

ASPHALT ROOFING

(Ariz., Calif., Idaho, Nev., Ore., Utah, Wash.)

	ASPHALT ROOFING (Sales squares)	SATURATED FELTS (Tons of 2000 lbs.)
April	793,719	4,832
May	811,578	4,799
June	797,995	5,444
July	725,892	5,513
August	775,095	....
September	862,859	....

TRAILER COACHES

Housing types only. From Bureau of the Census
In number of units—California only.

	Production	Shipments	Value of Shipments
1947	1,084	1,068	\$1,403,621
May	1,239	1,163	1,554,337
June	1,314	1,281	1,668,163
July	1,525	1,261	1,668,023
August	1,431	1,421	1,952,033

CEMENT

(In thousands of bbls.; from U. S. Bureau of Mines)

	California	Oregon	Wash.	Utah	Idaho
Feb.	1,855	1,613	250	286	109
Mar.	1,829	1,907	298	460	245
April	1,670	1,901	432	523	356
May	1,745	1,938	317	523	413
June	1,684	1,906	437	519	386
July	1,690	1,899	504	563	391

of half a ton from October 1 forecasts, or 177,000 additional tons of beets. This is due largely to the expansion of sugar beet production in the Imperial Valley. Colorado's estimate also has been upped from 13.8 tons to the acre to 14.3, or 94,000 tons of beets total. Predicted output for Utah and Idaho remains unchanged.

An active market and good supply of raws have combined to keep the California cane refineries in full operation, eliminating the usual slack-off at the end of the year. Output is even above prewar figures. Late reports indicate the Hawaiian crop will fully reach the predicted total of 850,000 tons.

(Continued on page 23)

WHEAT FLOUR

(In thousands of sacks; from Bureau of the Census)

	Ore.-Wash.	Moosana	Utah-Idaho	Colorado	California	Total
April	1,694	360	526	448	420	3,437
May	1,701	362	484	467	362	3,376
June	1,721	342	488	432	409	3,392
July	1,602	356	293*	458	445	3,154
August	1,613	362	317*	467	368	3,127
September	1,498	352	327*	462	321	2,960

*Utah only.



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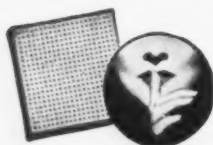
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Meat

With the advent of winter, meat prices started climbing still higher, but apparently the peak of the demand for the more expensive cuts of meat has passed. Packers were operating normally, with supply in strong hands. Lard has been selling well and the demand for hides continues strong.

WINE

(From Wine Institute—California only)

1947	Shipments
June	5,725,363 gallons
July	6,227,895 "
Year to date	40,737,883 "

Canning and Packing

California fruit packs have moved out of first hands at the rate of two-thirds of the total supply of cling peaches and fruit cocktail and half the supply of apricots by November 1.

Movement figures are as follows:

	Apricots	Cling Peaches	Freestone Peaches	Fruit Cocktail
On hand 6/1/47				
sold - unsold	279,254	456,294	41,087	62,265
1947 pack	3,062,545	15,318,945	1,497,286	9,305,171
Total pack & carryover	3,341,799	15,775,239	1,538,373	9,367,436
On hand 11/1	1,543,911	5,938,666	653,632	3,164,158
Movement, 6/1-11/1	1,797,888	9,836,573	884,741	6,203,278

Pack figures on pears are not yet available, but the California canners took a record volume of 182,000 tons in 1947, compared with 143,800 actual tons in 1946, due to a falling off in the fresh shipping market. Possible 6,000 tons of the 1947 California pear crop went to the Pacific Northwest, an increasing outlet. Canners paid less for their pears in the season just closed, ranging from \$50-\$60 on the low side to \$80-\$90 at the top. In 1946 the spread was \$80-\$90 low to \$110-\$120 high. Fruit sized up larger in 1947 than the year before.

California sardine pack to Nov. 20, 1947, is reported by California Sardine Products Institute as 1,168,601 cases, down 520,449 cases from same date in 1946. Tonnage delivered to processing plants was 94,457 tons, as against 149,730 tons at the same date in 1946. California Fish and Game Commission, in an effort to conserve diminishing supply of sardines, has ruled that from December 1, 1947, to July 1, 1948, no canner may accept a load containing more than 25 per cent of sardines shorter than seven inches, Pacific mackerel under 11 inches, and jack mackerel under eight inches.

California frozen fardhook lima bean pack reached an all-time high in 1947, with 33,695,717 pounds, compared to 16,202,414 pounds in 1946, a gain of 81 per cent. Trend toward retail size containers continued, reaching 66 per cent. Retail sizes standardized on a 12-oz. package in 1947. Baby lima bean pack fell off to 3,356,583 pounds from 4,259,961 pounds in 1946. Amount packed in retail size packages increased from 38 per cent in 1946 to 68 per cent in 1947.

APPAREL

(In thousands of dollars)

Total Women's, Misses' & Juniors' Outerwear			
	Los Angeles	San Francisco	
February	8,511	2,324	
March	9,094	2,324	
April	7,118	1,721	
May	4,505	1,731	
Men's Wool Work & Dress Trousers			
	Overall's (thousands of dozens)	California	California
March, 1947	21.0	96.3	
April	22.5	91.1	
May	24.8	87.2	
June	27.4	95.1	
July	19.7	103.3	

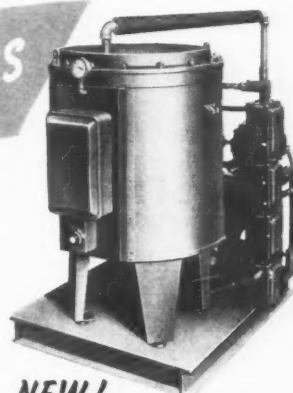


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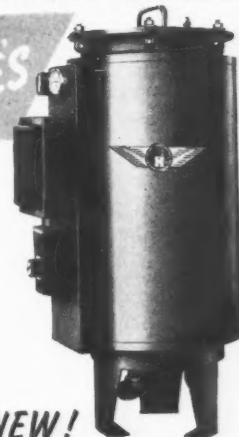
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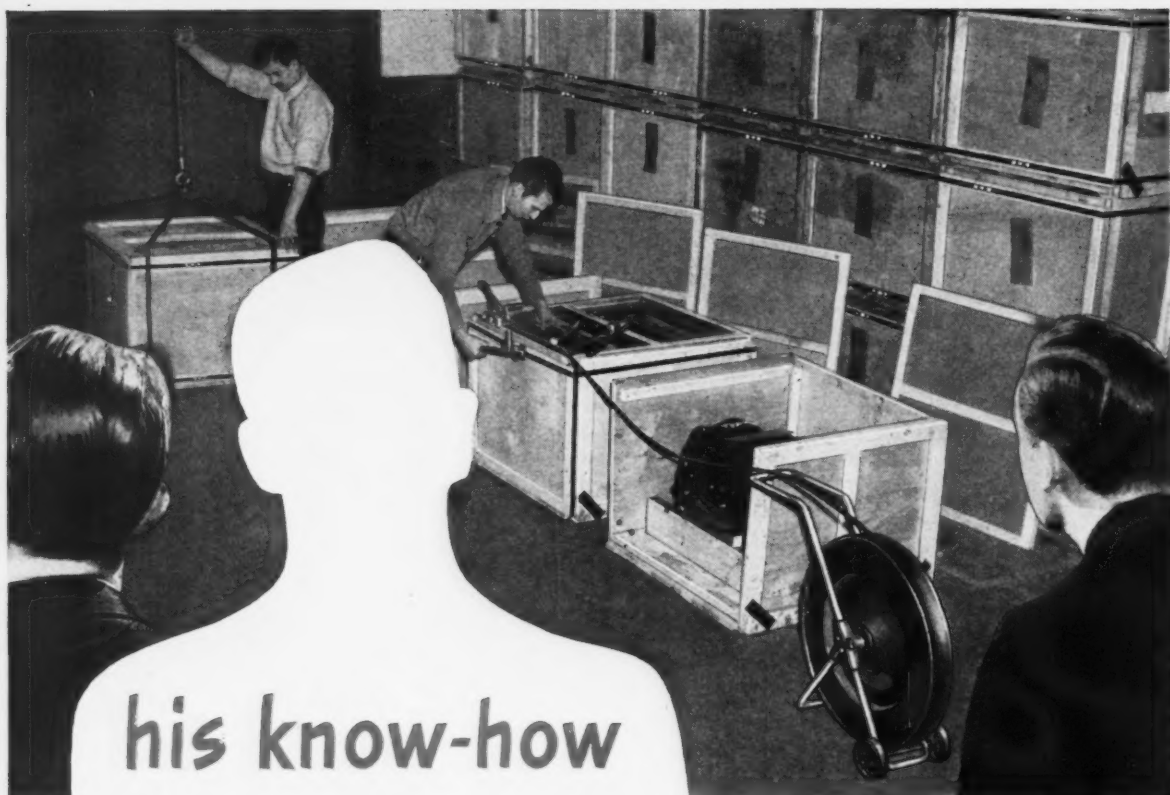
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Spotlight

on the NEWS

WESTERN INDUSTRY
FOR JANUARY, 1948

VOLUME XIII NUMBER 1

Although the electric power industry of the Pacific Northwest is breaking records in energy production, the light metals industry is breathing on its neck with programs calling for still more juice.

Looking first at the record of the interconnected system of the Pacific Northwest Power Pool, its Western division met an all-time high energy demand of 2,727,000 kw. on November 12, with only about 60,000 kw. actually available in reserve. A week later Bonneville and Grand Coulee's generators met an hourly demand nearly 50,000 kw. above the war's highest peak.

Now for the future. Aluminum Company of America expect to build an aluminum rod and wire mill at or near the Alcoa reduction works at Vancouver, Wash. Major product will be steel reinforced aluminum transmission cable. Permanente Metals Corp. (Spanish for Kaiser) also will build a rod, bar and wire mill at the Trentwood rolling mill, and have bought a German aluminum foil mill to be re-erected in Washington, either in connection with the Tacoma reduction mill or at Spokane in conjunction with the Mead reduction mill or the Trentwood rolling mill.

Reynolds is reported desirous of re-opening its Longview plant, shut down after Troutdale was leased from the government, and War Assets Administration are calling again for bids on the magnesium reduction plant at Spokane, just a month or so after announcing they would wait until more electric energy was available. WAA were spurred on by an offer from Chromium Mining & Smelting Corporation of Ontario, Canada, and Buffalo, N.Y.

Flattening the Spiral

One aircraft maker had unexpected support from its union in meeting financial problems. The independent union at Solar Aircraft Co.,

San Diego, representing 60 welders, agreed to forego wage increases if Solar would limit its profits to 10 per cent on sales. The company suffered a heavy loss last year, but has now begun to emerge from the red.

The union's secretary told Solar's president that "If you will agree to use your influence toward keeping the cost of living down by limiting your profits to 10 per cent, I will pledge that our boys will do an honest day's work every day and you will have no complaint that production doesn't reach or exceed prewar standards."

Trucks to the Rescue

If General Gallieni's "taxi-cab army" could hurl back the Germans from the gates of Paris in 1914, perhaps a "truck and trailer army" can help defeat the high cost of home building by getting more than a billion feet of lumber out of the Pacific Northwest that has been stockpiled for lack of transportation.

Part of the present increase in housing costs is due to inability of producers to move their lumber to consumers, according to George T. Gerlinger, chairman of a special committee of Oregon lumbermen hunting a solution for the freight car shortage which has been their main problem since last August.

As a remedy for the transportation bottleneck, he reports that increasing numbers of lumbermen are utilizing trucks and motor transportation to move lumber to California, Portland and ports on the Oregon coast. He estimates there is 500,000,000 board feet stockpiled in western Oregon and Washington alone, with the most serious situation in the Willamette Valley and southern Oregon.

Railroads Challenged

If the railroads get higher freight rates in the West and include in them the cost of featherbedding, it will be over the dead bodies of Morris Pendleton of Plomb Tool and his California Manufacturers Association freight traffic committee.

Here is the picture they painted to the ICC: of estimated net income of all railroads for first nine months of 1947 (three times greater than same period of 1946) 56 per cent accrued to lines in Western territory; in September, 1947, Western lines earned 102 per cent of the net income of all railroads, while eastern and southern lines had what amounted to a two per cent deficit; railroads in 1947 requested or received increases in general rates up to 69 per cent, yet selling prices of California manufacturers have advanced only 44.7 per cent since 1939, while average wages of their employees increased 99.93 per cent.

Committee's proposal: no further increases to Western lines where no additional revenue needs are substantiated; if further increase above the 10 per cent "emergency" increase just granted is justified for eastern territories, through transcontinental rates be increased only on that portion of the haul which is in eastern territory.

"There is no apparent intent on the part of our Western railroads to oppose these further increases," says Mr. Pendleton, "even though their earnings reports indicate such additional revenue is not currently needed to maintain their equipment or their financial structure. . . . Public and shippers cannot be expected to continue paying for such excesses as featherbedding. The railroads must throw off the shackles of complacency."



Taking the Distance Out of Your Steel Problems

Urgently needed by a Los Angeles engineering company, was a large shipment of stainless steel pipe in a special size. A call to the Ryerson plant in Los Angeles disclosed that the required pipe was not in Los Angeles stock, but *was* on hand in another city.

Ryerson Los Angeles immediately phoned Ryerson in Chicago. Could Chicago supply the desperately needed pipe? Chicago could—and did! The material was quickly trucked to a Chicago airport, flown to Los Angeles, and delivered at the customer's plant the following morning, less than 24 hours after the order was received.

That's how Ryerson—when the steel *is* available—can take the *distance* out of your steel problems. That's how the twelve closely cooperating plants of the Ryerson Steel-Service System often accomplish

the seemingly impossible in an incredibly short time. And that's the sort of far-reaching service you can look for when you contact any Ryerson plant for any steel requirement.

JOSEPH T. RYERSON & SON, INC.

Box 3817, Terminal Annex, Los Angeles 54, Calif.

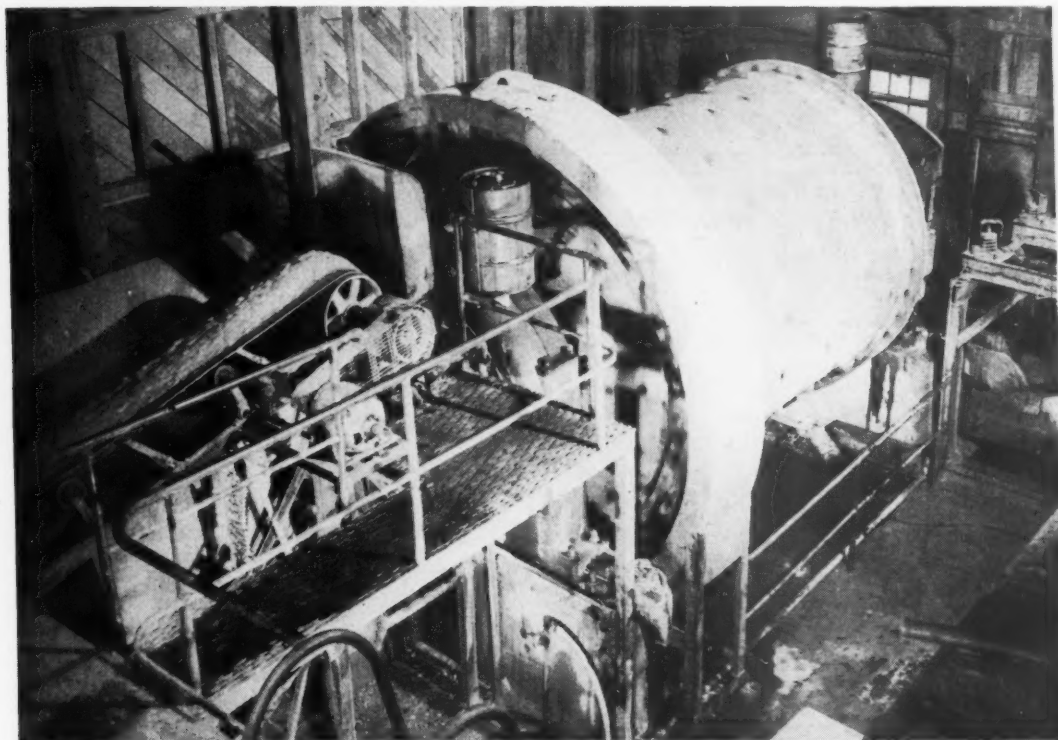
Other Plants: Chicago, Milwaukee, Detroit, St. Louis, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston.

PRINCIPAL PRODUCTS

Bars—hot and cold rolled alloy steel reinforcing	Mechanical Tubing Boiler Tubes and Fittings Allegheny Stainless— sheets, plates, shapes, bars, tubing, etc.	Tool Steel Wire, Chain Bolts, Rivets Babbitt Metal Working Tools & Machinery, etc.
Structurals Plates— Inland 4-Way Floor Plate	Sheet and Strip Steel	

RYERSON STEEL

PICTURE OF THE MONTH



THE INDUSTRIALIZED WEST . . . By using this big Marcy rod mill the Bradley Mining Company has been able to double production at its Yellow Pine Mine at Stibnite, Idaho. The mill is 9½x12 feet, one of the two largest in the world, and is used in the grinding circuit, eliminating an additional stage of fine crushing. The practice has been a marked success.

Job Evaluation: A Simple Tool For Any Plant

EVERY employer of two or more persons who pays differing wages for services rendered uses "Job Evaluation." Many employers may believe that they do not. Indeed, some may take serious exception to the statement and take a position of being "agin" Job Evaluation. Some consider it just another device to promote regimentation or perhaps encourage unionizing where none may exist. The statement is nevertheless true and it may be helpful to examine certain basic facts surrounding all employment.

All employers cannot present to their employees identical or equal jobs through-

By **THOMAS T. ARDEN**
Executive Vice-President
Grayson Controls Division
Robertshaw-Fulton Controls Company
Lynwood, California

out any substantial period of time. In the very simplest employer-employee relationship, some tasks to be performed will be simple and others complex, and with the passage of time these relationships will change with the fortunes and development of the business.

In the very smallest industrial organization there is usually work available for

relatively unskilled employees and there is frequently available, work requiring some education, training and experience. Further, there may be a need today for unskilled workers and tomorrow for highly skilled workers. An employer during the war manufacturing parts for airplanes, for example, probably needed many highly skilled employees. Reconversion might have found him making something relatively simple which required a much higher proportion of less skilled employees.

Be the shop big or little, complex or simple, there is ever present before the

employer the problem of fairly compensating his employees on the basis of work actually performed. Before every employee there is the identical problem of getting for his labor a wage fairly related to that received by others performing like or similar work.

In addition, where a wide variety of jobs are performed within a single establishment, there is the joint problem for employer and employee to arrive at equitable rates for all jobs performed, so that even those which are unlike or dissimilar

are properly related to others and fair to all concerned.

Let us say that you as an employer determine that a certain job "A" is to be paid \$1 an hour, and that another job "B" is to be paid \$1.35 an hour. You may have excellent reasons for believing that you have fairly priced the two jobs, but if your decision were questioned could you justify the substantial difference?

Suppose for a moment that the questioner is one of your own employees and that he is supported by a skilled and quali-

fied representative. Could you prove your position and satisfy the employee on job "A" that his \$1 is fairly related to the \$1.35 that you pay his friend and fellow worker on job "B"?

It is probable that one of the great sources of labor unrest and unhappiness is *unequal pay for comparable work*. Situations of this kind are breeding grounds for discontent and dissatisfaction. Allowed to persist, they invite serious internal troubles.

No worker paid a fair wage for his work will long remain satisfied after he discovers that you, his employer, pay a substantially different wage for like or similar work, even though you may not be aware of the fact that such an inequity exists.

Would you depend upon traditional relationships? They can and do change. What means do you use to make sure that when changes in jobs occur, your wage structure retains a harmonious and workable relationship?

Furthermore, tradition is not a reliable gauge to determine the wage relationship between hourly employees and many salaried employees working under the same roof. Most employers' "roofs" are relatively small umbrellas. "Grapevines" are marvelously efficient transmission belts for information and if there is any improper relationship in wages and salaries, only grief can be expected until a proper relationship is established.

There are some who believe that Job Evaluation is a rather complicated proposition, costly to install and maintain.

True, Job Evaluation is not quite as simple as falling off a log, but it need not be complicated and when properly understood and applied, it can be entirely workable. As a matter of record, many employers have discovered that the use of a formalized Job Evaluation Plan has saved them thousands of dollars.

Basically, Job Evaluation is a simple proposition. It involves little more than sub-dividing any job into pieces sufficiently small so that the piece itself can be properly considered, understood and measured against some yardstick.

It might be likened to a pie. A "whole pie" might be a little difficult to compare fairly with another pie. Certainly, it is no trick at all to evaluate the upper crust, the lower crust and the quantity and quality of the filling.

And in Job Evaluation it is just about as simple to take apart any job, chop it up into small pieces, judge and weigh the pieces and then stand them along side a yardstick for comparison purposes.

Why a California Manufacturers Association Plan?

It is recognized and freely admitted that many excellent job evaluation plans have been in use for years. Many of the nation's

Members of the CMA Industrial Relations Committee who drew up the Job Evaluation Plan for the Association:

Arthur Abrahamson, Ind. Rel. Dir. Norris Stamping & Mfg. Co. Los Angeles	T. H. Larkin, Ass't Pers. Dir. Golden State Co., Ltd. San Francisco
Frank P. Adams, Vice Pres. Vacu-Dry Company San Francisco	Roy Madsen, Ind. Rel. Dir. Helm's Bakeries Los Angeles
H. L. Bagnall, Personnel Dir. Moore Dry Dock Company Oakland	Frank Packer, Wholesale Sales Mgr. Payne Furnace Company Beverly Hills
Del Biles, Personnel Dir. Day and Night Mfg. Co. Monrovia	J. H. Pengilly, President Square D Company Los Angeles
Eaton E. Binger, Ind. Rel. Dir. Solar Aircraft Company San Diego	Clifford Sexsmith, Super. Pers. Records Plomb Tool Company Los Angeles
C. L. Brandrup, Personnel Mgr. American Cynamid & Chemical Corp. Azusa	C. H. Sandham, Controllor National Lead Company San Francisco
Vinton T. Cerf, Ass't to Pres. Pacific Plastic & Mfg. Co., Inc. Los Angeles	C. T. Spivey, Ass't Dir. Ind. Rel. Columbia Steel Company San Francisco
T. E. Colvin, Pres. Bessler Corp. Emeryville	Fred L. Stettner, President Victor Equipment Company San Francisco
Frank Downey, Dir. Ind. Rel. Harvey Machine Company Torrance	John Wagner, Ass't Pers. Mgr. Cutter Laboratories Berkeley
Robert C. Geffs, Vice Pres. Domestic Thermostat Company Los Angeles	Howard Wells, Pers. Mgr. Paraffine Companies, Inc. San Francisco
William B. Hubbard, President Cherry Rivet Company Los Angeles	Frank Wood, Vice President Day and Night Manufacturing Co. Monrovia
S. E. Jorgensen, Factory Pers. Mgr. Sherwin-Williams Company Oakland	<i>Vice Chairman</i> L. B. Drury, Job Analyst C. & H. Sugar Refining Corp. San Francisco
C. M. Jorgenson, Vice Pres. Laher Spring & Tire Corp. Oakland	<i>Vice Chairman</i> Karl Hansen, Ind. Rel. Dir. National Supply Company Torrance
Clyde King, Mgr. Ind. Rel. Fibreboard Products, Inc. San Francisco	<i>Chairman</i> T. T. Arden, Exec. Vice Pres. Robertshaw Thermostat Co. Lynwood
T. J. Kroetch, Ass't Oper Supt. Sherwin-Williams Company Oakland	

The following professional consultants assisted:

Benjamin Borchardt Benjamin Borchardt and Associates Los Angeles	E. D. Hayword, Vice Pres. Production Management Engineering Co. San Francisco
M. V. M. Goddard M. V. M. Goddard & Associates San Francisco	Dwight Palmer Dwight Palmer & Associates Los Angeles
Lyle M. Baines M. V. M. Goddard & Associates Los Angeles	Fred Reel Calif. Metal Trades Ass'n San Francisco
J. M. Zimmerman United Employers, Inc. Oakland	

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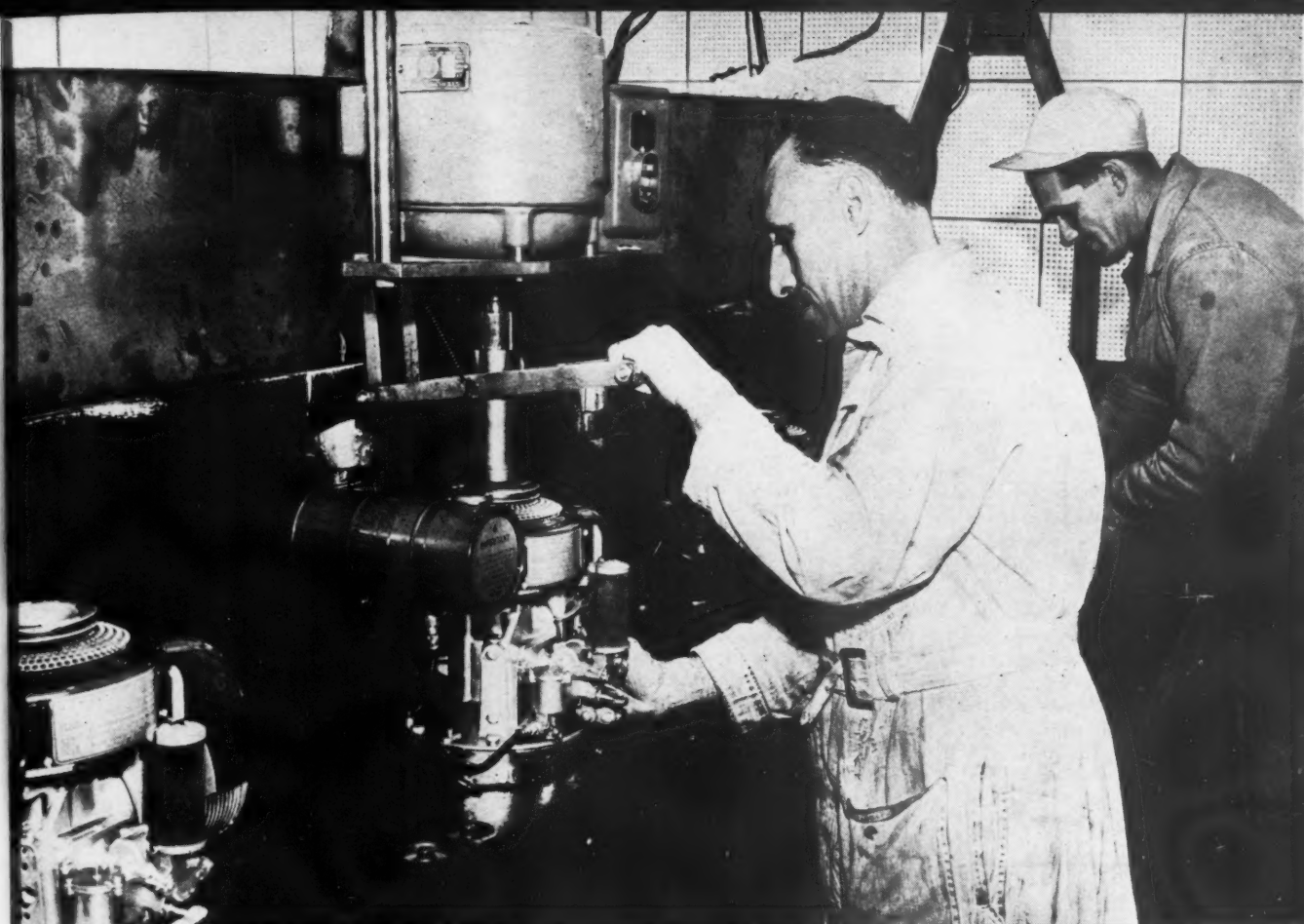
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—Courtesy McCulloch Motors

• Basically job evaluation involves little more than sub-dividing jobs into pieces that can be compared and measured against a yardstick.

largest and most successful industries consider Job Evaluation an essential part of their business. A number of large trade associations operating across the nation have devised excellent plans for their particular industries and many of these enjoy wide usage.

Generally speaking, however, when an industry prepares a job evaluation plan for its own use, it is tailored to the peculiarities of the industry. In like manner, plans prepared by trade associations tend to tailor the evaluation to the work performed by members.

Evaluation plans of these two types can be excellent in themselves, but their essential nature limits their consideration by other industries and by substantial groups of diverse industries operating within a recognized geographical area. Furthermore, there are traditional differences between wages paid in industrial communities across the nation, caused by geography, climate, available raw materials and nearness to markets.

It is conceivable that a widely diverse group of industries operating within the same geographical area might be very much interested in showing themselves that the wages paid within the area are properly related.

When the California Manufacturers Association examined many of the nationally successful job evaluation plans they found that most were designed primarily for hourly paid workers and that frequently no provision was made for salaried "white collar" jobs, which somehow or other must be properly related to those paid hourly.

To meet the double need of a broad base job evaluation plan suitable for all types of industries and for all employees, hourly and salaried except executive, administrative and professional, (and to establish a yardstick that might serve for eventual California wage surveys), the California Manufacturers Association spent approximately one year in developing the C.M.A. plan. It was worked out by the Association's industrial relations committee, made up of representatives from 29 companies in all kinds of industries scattered all over the state and seven professional management consultants.

Throughout its development the plan was frequently revised and on a number of occasions given the test of use in individual companies to assure that it could be successfully applied to widely differing types of industrial endeavor.

Scope of Job Evaluation

Effective wage and salary administration looks upon Job Evaluation as an essential business tool. Its use and application are wide, but alone it cannot be expected to cover all problems of wage and salary administration.

Job Evaluation confines itself entirely to the job. The analysis should be limited to the actual work performed and should *never* concern itself with the person to whom the work is assigned. Neither capability or inadequacy of a worker falls within the scope of job evaluation.

Evaluation proposed an analytical study of the content of each job in a plant or office and appraises all of the characteristics of each according to the relative difficulty and importance. The factors or characteristics are weighed objectively in terms of tangible and quantitative figures.

Job evaluation makes possible the establishment of wage and salary schedules that will be properly related for all positions whether in the factory or office. Further, the plan provides a basis for adjusting rates of pay when changes are made in the content or nature of the job and for correcting existing inequitable rates. Job evaluation can be the means for better and

(Continued on page 30)

Job Evaluation: A Simple Tool

(Continued from page 29)

sounder assignment of workers to individual tasks, and it may be used to specify hiring requirements.

Adoption and Use of the C.M.A. Plan

The C.M.A. Job Evaluation Plan has been printed and published by the Association. Copies are free to members and available at printing cost to others interested in using the plan.

In considering the initial adoption of the C.M.A. plan, some basic knowledge of the techniques of job evaluation are useful. Much has been published on the subject and the C.M.A. printed plan contains useful basic information.

For those anxious to determine quickly the possibilities of adopting job evaluation, it is suggested that the services of a management consultant might be profitably considered. Since a number of professional firms assisted in the preparation of the C.M.A. plan these organizations are entirely familiar with it and have experience in adapting it to the needs of their clients. It is certain that this plan is no more difficult to adapt than any other standardized job evaluation plan.

The C.M.A. plan itself might be considered as a "factor comparison plan." Twelve factors are used and the weighting of each is very similar to the weighting used by any other nationally used plan. Application to both hourly and "white collar" occupations is accomplished in a unique manner. Certain factors are of such a nature that they do not apply to all factory and office jobs.

In every instance, the lowest recognized degree within a factor is evaluated at zero points. Whenever a factor does not apply to a given occupation, it automatically disappears from consideration. For example, there are not likely to be any "unavoidable hazards" in many office occupations. Neither is it likely that the factor "responsibility for confidential data" would apply to very many factory jobs.

In order to include all factors for all jobs, the first degree for each factor represents the non-existence or negligible application of the factor; therefore, the point assignment for the first degree in every case is zero.

Unlike some other job evaluation plans, no "free" or base points are given, thus avoiding a distortion of the total point re-

lationship between jobs. There is no point assignment for the mere presence of a worker at a work station if the job requires no particular qualifications and has ideal working conditions.

Job Descriptions

The preparation of job descriptions in sufficient detail is essential. They should be complete and concise word pictures of the actual work being performed and should studiously avoid ambiguous language.

Insufficient information in preparing job descriptions can be a source of serious error in the actual evaluation and may also encourage employee grievances. For example, if the description of a given job should accidentally omit working tolerances or quality or process specifications, it is probable that the valuation would be incorrect and that management would be vulnerable because it could not substantiate the evaluation on the basis of its true content.

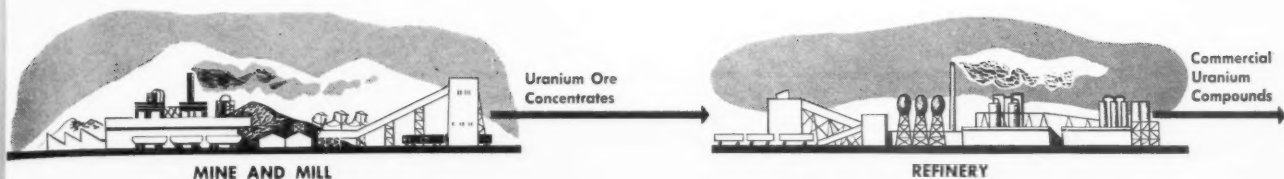
Job descriptions can be prepared in accord with a number of plans but care in their preparation cannot be overemphasized.

(Concluded in February issue)



* The frozen foods industry took a heavy beating last winter but staged a very prompt recovery and apparently is on its way toward further expansion. This picture shows filled packages being loaded into the patented quick-freezing machine at the Hillsboro, Oregon, plant of Birdseye Foods. The freezing is done by means of plates between the layers of packages in the cold box at sub-zero temperatures.

URANIUM: ORE TO POWER



HARNESSING THE ATOM

By C. P. CABELL

Technical Department, General Electric Co.
Hanford Engineer Works, Richland, Wash.

(By courtesy of the General Electric Review)

THE average engineer is willing to take the physics of nuclear energy for granted. He is interested, however, in how nuclear energy may be put to work.

He wants to know how it compares with the production of energy from conventional fuels. He wants to know something of how nuclear reactors are designed and operated, and he is very much concerned with costs.

This article attempts to answer some of these questions. The material for it has been drawn from official releases, and from the author's own experience; and it is as complete as is consistent with security regulations at this time.

The most exciting potential use of nuclear energy is nuclear power plants for the generation of electricity. In such a

plant operating at 30 per cent over-all efficiency, one pound of uranium U-235, which could be represented by a cube about one inch on a side, would produce 10,000 kw for 13 days; 45 tons of uranium U-235, which could be represented by a cube 4 ft. 3 in. on a side, could be used to supply all the electric power used in this country for an entire year.

It is conceivable that a gas-cooled nuclear power plant could be built which would not require water for generating or condensing steam. A plant of this type could be used anywhere in the world—in the desert, in remote mountains for mining enterprises, or on the polar ice cap. It would require very little fuel and would be almost self-sustaining.

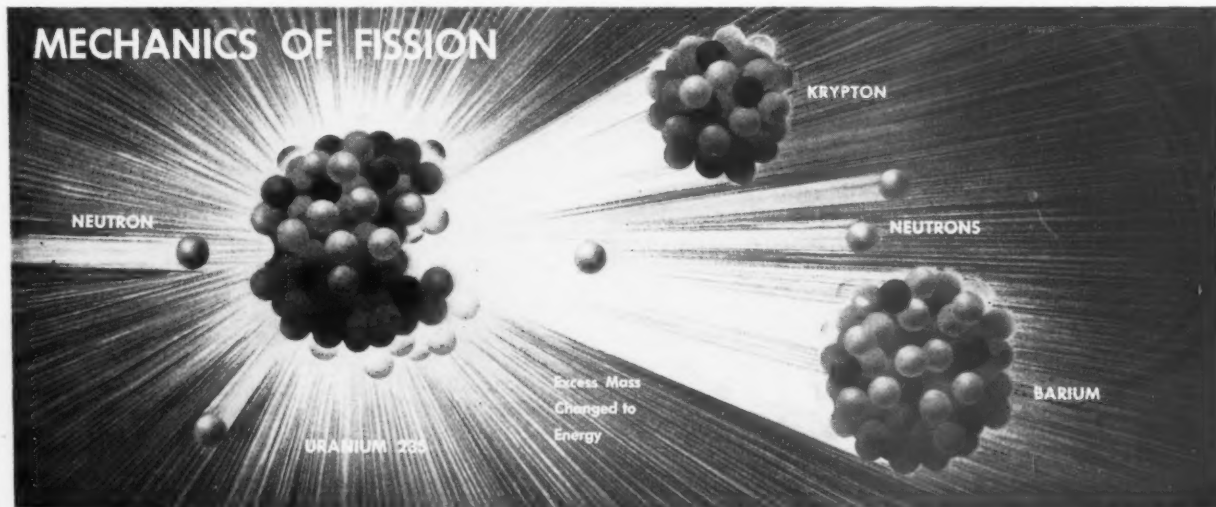
A gas-cooled unit, however, would be a special development. A more likely type

of nuclear power plant would use water for cooling, and its main advantage over present power-generating equipment would be in the negligible amounts of fuel required for continuous operation.

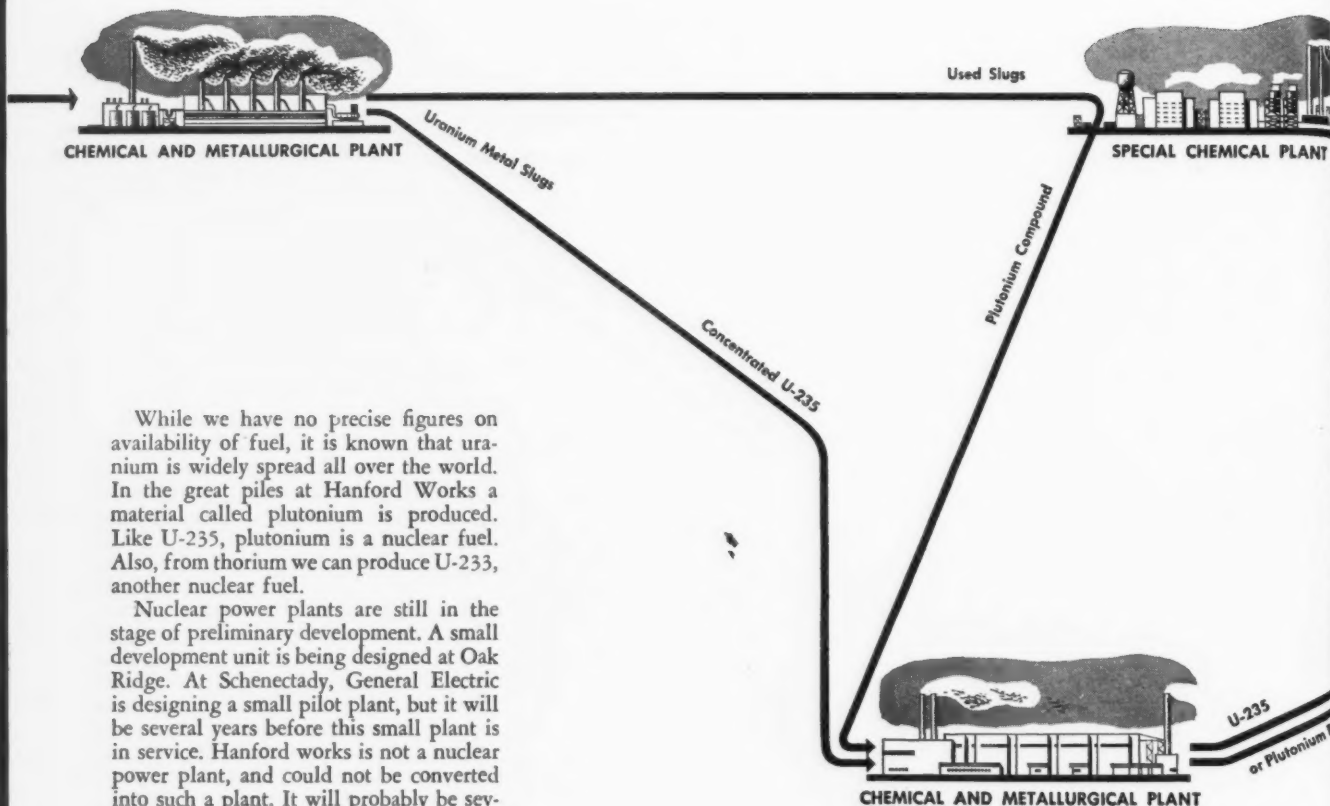
Estimates have been made of the cost of nuclear power units. It appears that these plants would be much more expensive to build than coal-fired units; but if low nuclear-fuel costs are realized, the cost of electricity generated by nuclear plants would be only slightly greater per kilowatt-hour than that of electricity produced by coal-burning plants.

This statement assumes a high load-factor since fixed charges will represent most of the cost. It is reasonable to expect that costs of power produced by nuclear plants would come down as experience is accumulated in their construction and use.

(Continued on page 32)



URANIUM: ORE TO POWER . . .



While we have no precise figures on availability of fuel, it is known that uranium is widely spread all over the world. In the great piles at Hanford Works a material called plutonium is produced. Like U-235, plutonium is a nuclear fuel. Also, from thorium we can produce U-233, another nuclear fuel.

Nuclear power plants are still in the stage of preliminary development. A small development unit is being designed at Oak Ridge. At Schenectady, General Electric is designing a small pilot plant, but it will be several years before this small plant is in service. Hanford works is not a nuclear power plant, and could not be converted into such a plant. It will probably be several decades before nuclear units are in common use, and even then they will be employed only where their inherent characteristics make them better suited for the particular applications.

There are many design problems peculiar to nuclear power units. These problems are so difficult to solve that they offer both challenge and potential satisfaction in accomplishment.

For the purpose of this article, it is assumed that the nuclear unit will consist of a pile for producing heat, a recirculating cooling medium, and an electrical generating plant. The recirculating cooling medium will carry heat from the pile to the generating area, where the heat will be picked up by a heat exchanger and converted into electric power by conventional equipment.

Alternatively, the cooling medium might be a gas, such as helium, and might drive a gas turbine in the generating area. As mentioned previously, the latter scheme would make a supply of water unnecessary.

As far as problems are concerned, the selection of the coolant, or heat-transfer medium, is itself a fine example. First of all, the medium must resist the intense neutron bombardment in the pile without

having an appreciable fraction of its mass converted into some other element.

Strange things happen in a pile. Nitrogen, a gas, comes out as carbon; silicon comes out phosphorous; gold comes out mercury; and sodium comes out magnesium. As a matter of fact, a pile can even make gold, but it requires platinum on which to perform this miracle!

Second, the material selected as the heat-transfer medium should not be unduly corrosive and should remain liquid at high temperatures and under relatively low pressures. The medium will become intensely radioactive during its passage through the pile, and by specifying low pressure at high temperatures the designer will reduce the operating difficulties experienced in handling a highly radioactive material at high pressures.

Third, the medium must not poison the reaction by absorbing an excessive amount of neutrons, since neutrons are the lifeblood of the pile operation. (All materials in a pile absorb neutrons to a greater or lesser extent.)

Only a small amount of coolant can be allowed in the pile because of the neces-

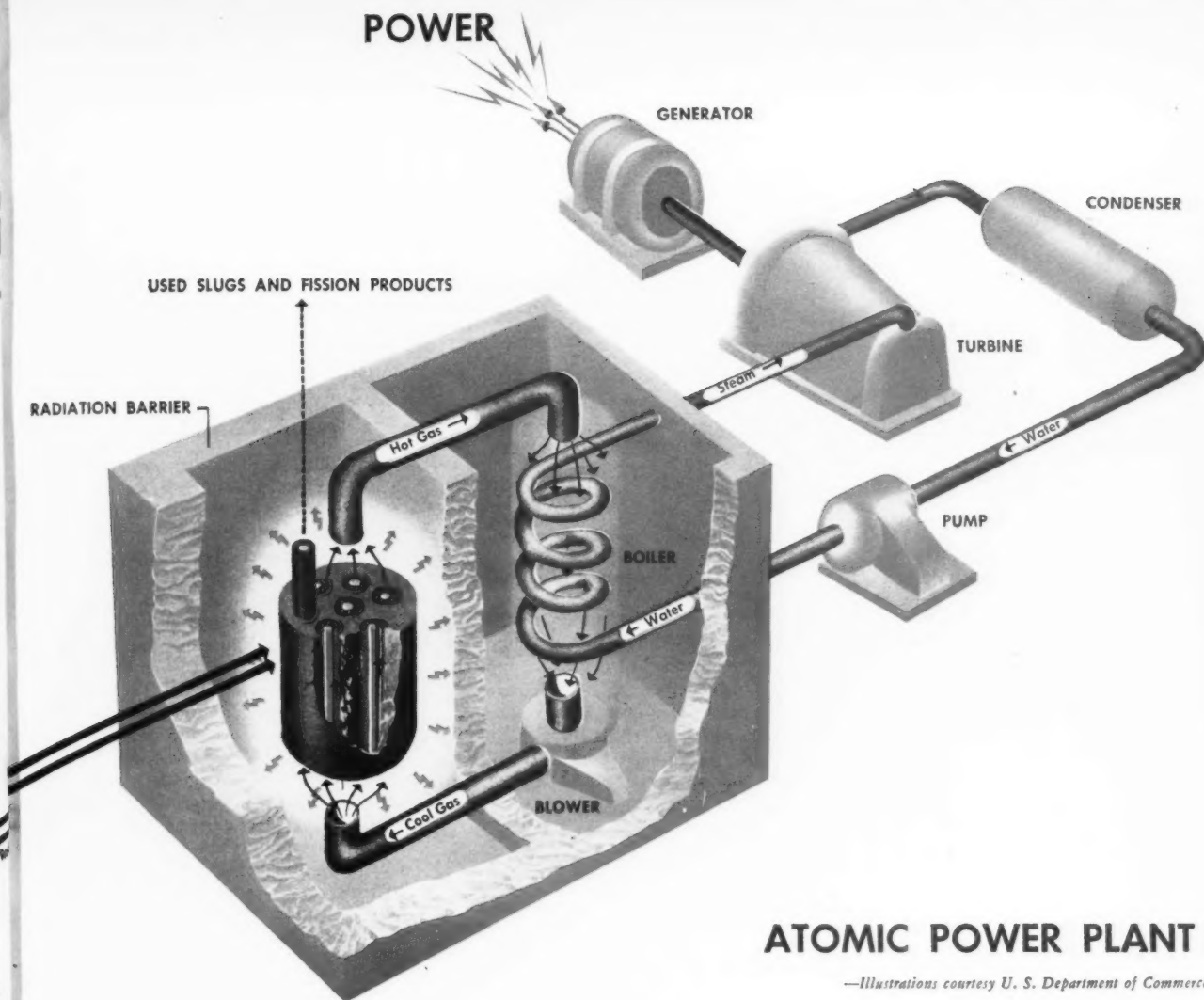
sity for minimizing the absorption of neutrons. Since heat loads will be very high, the design of the cooling passages and arrangement of heating elements in the pile will involve some advanced heat-transfer engineering.

Equipment for handling the coolant outside the pile also presents problems. While the temperature of the fluid might cause it to be a fire or health hazard, most of the major design problems are caused by its radioactive nature. The whole heat-transfer system, therefore, must be enclosed in heavy shielding.

There must be no leaks into the steam side of the heat exchanger, for this might cause radioactive materials to contaminate the steam system. If a leak occurred from the steam side into the radioactive side, the chemical reaction of the steam and fluid might cause trouble, and the introduction of steam into the pile cooling tubes would disturb the rather delicate operating conditions under which the nuclear reaction proceeds.

Naturally, there must be a pump in the system to circulate the coolant. Since the pump is handling radioactive fluid, it too

POWER



ATOMIC POWER PLANT

—Illustrations courtesy U. S. Department of Commerce

will become radioactive, and it will not be safe for a person to approach it except after a prolonged shutdown.

This means that the pump cannot be given the normal maintenance given pumps in other uses; no packing of the glands, for example. The problem of finding a gland that does not require repacking, yet is able to hold a thermally hot liquid—several hundred degrees, perhaps—is a difficult one, especially when it is realized that the radioactivity of the cooling medium may damage and eventually disintegrate packings.

The pump must be absolutely reliable. If the pump failed and the heat-transfer medium were to stop circulating in the unit, the heat would build up so rapidly that excessive temperatures might be reached in the pile and necessitate a shutdown. A multiple pump unit will probably be used, with a spare in parallel, standing idle but ready to pick up the load. No

doubt the basic principles used in designing feed pumps for forced circulation boilers will be employed.

However, the problems of handling the heat-transfer medium have some engineering precedent in General Electric's design of the successful mercury-vapor-steam generating system. It appears that many of the problems to be met in design of the nuclear-power cooling systems were encountered in designing this system.

The cooling medium in the new units will have to be separated from the uranium by some sort of covering on the uranium. Otherwise, the cooling medium and the uranium might react chemically and give trouble. A similar problem existed when designing the Hanford Works (the plutonium production plant) and it proved to be one of the most difficult problems in the entire development.

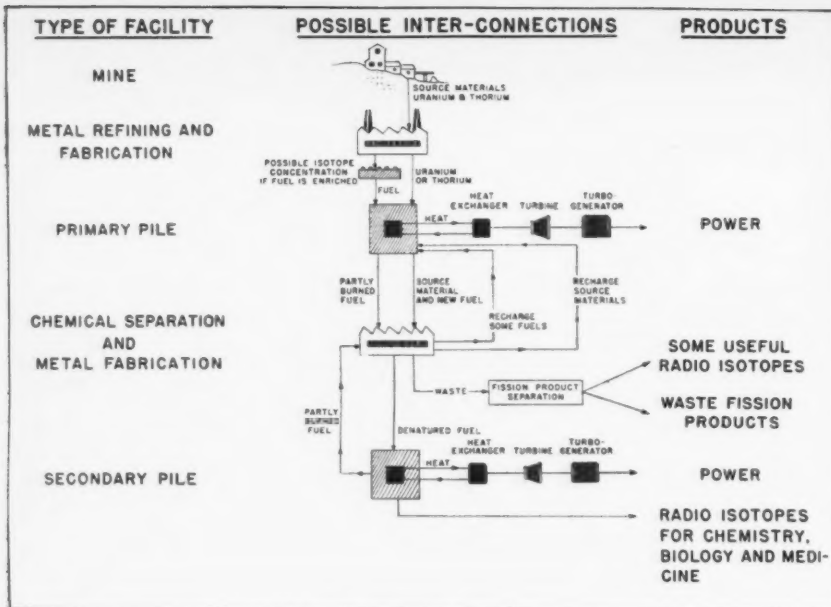
From the engineering point of view, production of heat by nuclear reaction is

somewhat similar to heat production by the burning of coal. There are, however, some basic differences.

The heat available from coal is usually measured in British thermal units (Btu) per pound. In nuclear reactions, the heat is measured in electron volts per atom.

An electron volt is a small amount of energy; it takes 6,650 million million electron volts to make a Btu. To produce 13,600 Btu per pound, a pound of coal containing 230 times 10^{23} atoms will give off energy at the rate of four electron volts per atom as it burns.

In the nuclear reaction, uranium also gives energy atom by atom. However, each atom gives off not four electron volts, but 200,000,000 electron volts. Thus, in the nuclear reaction, uranium releases 50,000,000 times as much heat per reacting atom as does coal in ordinary combustion, which works out to be 3,000,000 times as much heat per pound. This is the reason why



Atomic Power Facilities

uranium is such an important new source of energy.

The heat obtained by the nuclear reaction is formed by the explosion of the uranium U-235 nucleus. The scientific name for this explosion is "fission." Fission occurs when a neutron of the correct speed enters the U-235 nucleus. The nucleus flies apart violently and in the process of rupture some of the mass of the nucleus is converted into energy. This energy appears primarily as kinetic energy of the fragments of the nucleus, and it is the impact of these fragments on the surrounding matter which gives rise to the heat.

The reaction is of practical importance because in the explosion of the nucleus several new neutrons are released. These neutrons are immediately available to produce new explosions of uranium nuclei, and thus sustain the reaction.

For the purpose of illustration, it may be assumed that the uranium nucleus gives off two neutrons. These two neutrons would split two atoms the next instant, releasing four neutrons; the four neutrons would split four atoms, releasing eight neutrons; the eight neutrons would split eight atoms, releasing 16 neutrons; and so on.

Thus the reaction would increase in violence each instant. The energy released would also increase each instant, since each explosion would release 200,000,000 electron volts. When the energy released reached a value of 628 times 10^{17} million electron volts per second, power production would equal 10,000 kw. This power level could be reached very rapidly if desired.

In actual practice, it would not be possible to use both of the neutrons per ex-

plosion as a means of causing new explosions. Absorption of neutrons by the coolant, the pile structure, and the various materials present in the pile, together with neutron leakage from the pile into the shields, would cut the neutrons available for new fission to a value slightly over one neutron per fission.

It will be helpful at this time to introduce a term used to evaluate available neutrons produced per fission. This term is k , which is defined as the number of those neutrons produced in each fission which are available for the next fission. Thus a value of 1.00 for k means that each fission produces exactly enough available neutrons to cause another fission, and that a fixed quantity of neutrons is being formed and destroyed each instant.

Since the energy released by the pile comes from the fission of the uranium nuclei, as long as k has a value of 1.00 the power will remain at a constant level. However, it is not possible or desirable to design a unit having a k value of precisely 1.00.

In actual practice, the k for a pile is designed to be slightly more than 1.00. For operation at a given power level, k is brought down to 1.00 by means of neutron absorbers which can be varied at will. These absorbers are called control rods, and their absorption properties are varied by moving them in and out of the unit.

To start a pile into operation, or to raise the power level of an operating pile, the rods are moved to a point where k is slightly more than 1.00. Then the number of neutrons formed per second will increase exponentially, the speed of the increase depending on the amount by which k exceeds 1.00.

When the quantity of neutrons forming and being utilized per second has reached the desired value—which is to say, when the power has reached the desired level— k is reduced to 1.00 by reintroduction of the control rods. The reaction then continues at the new high level of neutron formation and use, and will remain at this level.

It is interesting to note that the position of the control rods to hold k at 1.00 for low power level is the same as the position required for high power level. This is because the rods absorb a certain percentage of total neutrons present, and this percentage is not affected by reasonable changes in total neutrons present.

Shielding Is Another Complex Problem For the Engineers

Shielding of nuclear power units will be a problem. The intensity of radiation will be far above that at the Hanford Works, where the shielding problem itself was very complex. The Hanford shields are not just a mass of concrete but are very carefully engineered structures which took a great deal of ingenuity and plain horse-sense to design. The requirements of nuclear power units are even more severe.

In addition to the high level of radiation, the high temperature in the new units will cause thermal expansion of the various parts, and all this must be compensated for in the shielding design. The shields, too, will undergo thermal expansion, for they operate by stopping the radiation and turning it into heat. Many holes will pierce the shielding, for process tubes, controls, and so on, and each hole itself must be properly shielded to prevent escape of radiation.

Instrumentation the Key to Safety and Accurate Control

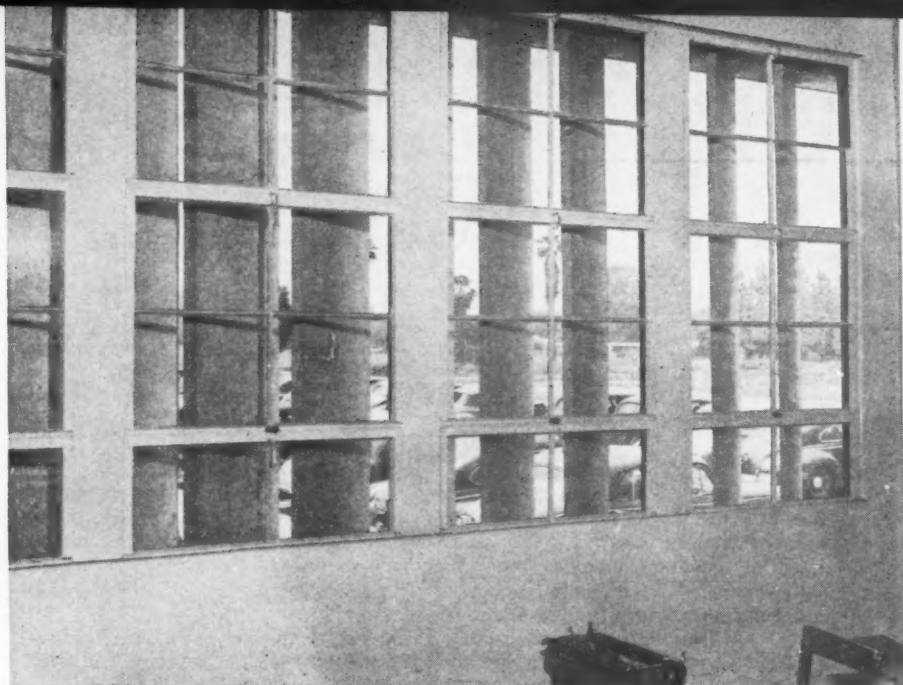
For the pile, instruments will be required to show power level, neutron intensity, and other major operating variables, and to give indication of trouble if any develops. This instrumentation will be a major electrical engineering job. No doubt the equipment will be based on ion chambers and counter tubes, but this equipment must be sturdy and reliable.

The safety instrumentation will be particularly important. In case of trouble, the control rods must shut down the unit automatically, and any other necessary safety equipment must be actuated. This instrumentation must be foolproof, and it must operate on currents as feeble as micro-micro amperes. Every effort must be made to eliminate pick-up of stray currents.

Another instrumentation problem is presented by the effect of radiation on insulating materials. Furthermore, the knowledge gained in that subject at Hanford Works might not be adequate since the new units will operate with much higher radiation intensity.

(Concluded in February issue)

Building Ideas for Worker Comfort and Safety



• Vertical concrete louvers at Chevrolet's Van Nuys plant not only prevent the glare of direct sunlight, but keep employees cool enough to make air conditioning unnecessary.

ADAPTING a method developed in Brazil to protect against tropical heat and glare, the new Chevrolet-Los Angeles assembly plant, located at Van Nuys in the hot San Fernando Valley, uses a system of vertical concrete louvers to prevent direct sunlight entering during working hours in summer.

These still admit diffused light, yet make it unnecessary to air-condition the plant, because the ventilation through the louvers cools the interior sufficiently for comfort. Basically the principle depends upon stopping the heat outside the building, and never getting through the glass. Once it penetrates such things as conventional Venetian blinds, it is too late to help it.

All banks of windows along the west side of the three major buildings—Administration, Assembly and Parts—are covered by louvers to keep out the afternoon sun, while windows on the east side of Administration are also covered to prevent glare in the morning. On the 12-ft. high windows of the assembly plant, a corridor is left between the shade and the wall to permit a person to squeeze in and clean the glass. Windows on the administration building open inwards.

The sill and head were cast with the concrete walls, and the vertical louvers are made of precast concrete made from lightweight aggregate, reducing weight and gaining in heat-insulating properties. The louvers are set in grooves in the head and sill, holding them at an angle of 45

degrees to the wall, which is just enough to keep out the direct sunlight. Louvers in the administration and parts buildings are 6 ft. 9 in. high, 2 ft. wide and 1 3/4 in. thick; in the assembly building they are 9 ft. 9 in. high, 2 ft. wide and 2 1/2 in. thick.

The plant was designed by the architectural offices of Parkinson, Powelson, Briney, Bernard & Woodford, with Albert Kahn, Associated Architects and Engineers, Inc., as consultants.

Insulation Saves Adjacent Tanks

WITHOUT mentioning names, a worthwhile lesson for plant engineers in those industries which handle oils at high temperatures, can be learned from the case here reported. The insulation of a heated, 1,500-barrel, road oil blending tank, prevented neighboring tanks from damage when a sudden explosion occurred. Of even greater importance was the complete isolation of the resulting fire.

The 3/16-in. welded steel tank was covered with a two-inch blanket of mineral wool insulation, the mineral wool being supported between two layers of chicken wire for ease of application. A covering of 20-gauge flat roofing sheet, fabricated with raised seams, and rib crimped in place for moisture tightness

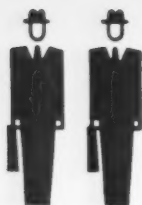
and mechanical strength, formed a protective covering for the mineral wool.

Along with five others in the group, this tank contained components used in mixing road oil and was maintained at temperatures between 300 and 400 F. Its explosion was believed to have been caused by excessive temperatures resulting from faulty burner controls.

The shock-absorbing characteristics of the mineral wool were such that tanks located from three to four feet away were not even dented by the shock wave. The sidewise thrust of the explosion was confined and the bulk of the explosive shock was in a vertical direction. In fact, after the explosion the mineral wool blanket was still intact and in place. Insulation of a friable nature would have been more likely to have transmitted the shock to adjacent tanks with the possible effect of broken seams and resultant leaks.

Flames persisted for several hours after the explosion but did not spread to the other tanks. The mineral constitution of the insulation rendered it fireproof, and the insulating qualities prevented overheating of adjacent tanks.

Yet another feature of the mineral wool was made use of before the case was closed. In addition to its properties of ease of application, shock absorption, and fireproofness, mineral wool is reclaimable. It was the only thing of value remaining after the fire was extinguished and was used again in constructing the new tank.



What it Takes to Keep Salesmen Loyal

By PAUL HEYNEMAN
(Until recently vice-president and assistant general manager of Eloesser-Heynemann Co., San Francisco. Currently sales and industrial relations consultant.)

WHY THE AUTO SALESMEN UNIONIZED

These are some of the conditions that led to the organizing of Local 960, Automobile Salesmen's Union of San Francisco 12 years ago, and the impact they had on the union contract which has since been imposed on all employers in this field. They show how inevitably the laws of retribution, of cause and effect, apply in the field of human relations.

My facts were obtained through conferences (supported by a written statement) with a former automobile salesman who is now a prominent sales manager of a unionized automobile sales force.

Cause: SPLIT COMMISSIONS — To avoid losing deals, salesmen were often urged to accept half or less of their normal commission. Then, after once submitting to this practice, the tendency was to make it the rule rather than the exception.

Effect—Today the union contract guarantees full commissions on all sales.

Cause: HOUSE DEALS — In the pre-union days the house frequently tried to deal directly with the buyer for the purpose of using the salesman's commission as an extra trading discount to help get the business.

Effect—Today the union contract limits house deals to 25 per cent of the total business.

Cause: CAPITALIZING ON SALES-MEN TURNOVER—There was a practice of hiring a lot of men, who were dropped after they had sold their own family and circle of friends.

Effect—This has also been controlled under the union contract.

Cause: HOURS AND DAYS OF WORK—Auto agencies were open nights, Sundays and holidays and salesmen were expected to be on duty throughout the year.

Effect—Under the union contract, not only is night, Sunday and holiday work eliminated, but a regular vacation plan is established for every man.

Cause: FLOODING OF SALES FORCES—The auto industry was seasonal in normal times. Regular salesmen would work for many months during the off-season under their own expense to stimulate advance interest in the new models. Then when these new models finally became available, these salesmen would suddenly find the force expanded, sometimes with part-time men. So, the big earnings, which these regular salesmen had been contemplating for months, would melt away because the firm's business was being shared with new-comers who had made no such capital investment.

Effect—Today's union contract controls this practice by guaranteeing every man a drawing account for 52 weeks every year

regardless of factory deliveries and by outlawing all part-time salesmen. So now the employer must share each salesman's capital investment during the off-season.

Cause: SPECIAL MEETINGS — Meetings were formerly called at odd hours—evenings, early mornings, etc.

Effect—The union contract now controls this practice.

Cause: DEMONSTRATOR CARS — In the middle thirties salesmen were frequently compelled to buy demonstrators on conditions which they felt to be inequitable.

Effect—Today's union contract sets up precise controls on this which give salesmen the choice of renting or buying demonstrators, besides covering such factors as insurance, free supplies and services, use during vacations, etc.

OTHER EFFECTS—Besides the points just mentioned, the union contract applying to this group of auto salesmen, also covers the following conditions of employment:

Right of new car salesmen to sell used cars and vice versa.

Limitation on number of executives doing sales work.

Rights of salesmen to handle floor prospects.

Required posting by employers of a record of all sales, so as to show full details of every transaction to every salesman.

Control of rotation in filling orders.

Commissions on forfeited deposits and repossessions.

Forbids requiring salesmen to act as driving teachers, collectors, doormen, maintenance mechanics, car polishers or to perform any service not connected with the sale and delivery of automobiles.

Forbids charging salesmen for advertising, literature, business cards or other stationery (which had been a common practice of the pre-union days).

Requires that all charity drives be handled by the union.

Forbids requiring salesmen to sell any given quantity of accessories.



(This is the second in a series of two articles)

IN THE opening installment of this article last month, I pointed out some of the dangers inherent in the employment practices of certain firms in dealing with their salesmen.

An object lesson is management's costly experience in the case of foremen and supervisors, which proved that this type of problem is far more difficult to solve after waiting until an active unionization program has gathered momentum.

The accompanying case history of the automobile salesmen's union emphasizes the danger in the various employment practices affecting salesmen, which were described in the first installment of this article.

Employers rarely, if ever, get a second chance to correct their mistakes. However, if this group of employers who must accept this union agreement were now to have such a second chance, I am convinced that they would gladly set up a voluntary creed of employment standards. Furthermore, such a creed would embody, not out of compulsion, but as a matter of enlightened self-interest, many of the conditions they are now forced to accept under the union contract.

The workings of retribution and of cause and effect have not been abrogated by the Taft-Hartley law. They may move very slowly but their influence and their direction are clear and infallible.

We in sales management—and I mean top management as well—now have our choice of two moves. The first is to learn the hard way, as did those automobile dealers. The second is for each of us to join with others in each of our industries NOW to persuade any minority among

us that wise and enlightened employment standards for salesmen are important and will pay off. There will be no second chance for us, either!

As I "look at the record" it seems to me that the old "do or die for the dear old firm" attitude among certain sales managers may soon become a relic of a bygone day. The sales manager of tomorrow must be more than a football captain or a yell leader to whip up enthusiasm. Besides having a wide range of administrative qualities he must have that all-important facility of knowing his sales force as men or women — as people — rather than as equipment for achieving a given sales volume.

To do this, he must assume the responsibility of knowing everything it is possible to know about these people. He must understand a lot more than he does now about their mental and emotional structure. This, in turn, will require a high order of intellectual honesty because he must forego the luxury of considering himself a self-made expert in judging people.

Instead, he must be willing to study, interpret and apply to his own business, the great advances being made by psychologists and other professionals who have the know-how for helping us better to understand both our people and ourselves. He must hunger as much for scientific advancement in that part of his work which involves people as do our research chemists and physicists for improvements in our products.

Another observation I would like to make is that when we employ salesmen we usually expect them to give us two distinct kinds of service. First, there are all the various tangible or measurable services, and second, the intangible ones. I think that we would be very wise not to confuse one with the other. Let me explain.

The *tangible* services are all of the many formalized jobs of knowing, of showing, of travelling, of explaining, of urging, of demonstrating, of befriending. As I see it, this phase of most salesmen's work might be classified as "labor."

The *intangible* services are those which involve the salesman's ability to radiate to others his own confidence in the wisdom and integrity of his firm and the value of its products or services. This, of course, involves his mental attitudes and his emotional qualities.

In the higher order of selling which we are discussing, this type of deep-down confidence cannot be an act or something to be turned on and off like a faucet. Such qualities in a salesman must be *felt* to be real and meaningful. It is my firm conviction that this phase of a salesman's work can be successfully undertaken only when he feels himself identified as a part of management.

The first category of *tangible* services can be bought by us sales managers for so many dollars, supported by all of the mod-

Sales Manager's Creed

I SUBSCRIBE to this Sales Manager's Creed, which I believe to be in the best interests of American business:

1. All salesmen shall receive fair compensation during their initial or subsequent training periods.
2. While recognizing changes in compensation or territory to be functions of sales management, salesmen shall be consulted prior to establishing such changes and given reasonable notice of the effective date.
3. Earnings of commission or bonus salesmen shall be unlimited, unless otherwise specified at the time of their employment. Should basic changes in a business justify modifying this policy, all salesmen affected shall be advised of the fact a reasonable time prior to establishing such ceilings as become necessary.
4. When evaluating the ability of salesmen, conditions beyond their control, such as differences in the sales potentials of their territories, shall be given full consideration.
5. Salesmen shall be offered the same vacation, job or income security, and other employee benefits as are enjoyed by other employees in comparable positions in the same company.
6. The only "house" or "no commission" accounts shall be those clearly defined in advance of solicitation.
7. The paper work required of salesmen shall be held down to a minimum and its value clearly justified.
8. Salesmen's expense reimbursement policies shall be uniform, after taking all variations of conditions into consideration.
9. A sharp distinction shall be drawn between salesmen's earnings and expense allowance, and any system which affords salesmen either a substantial profit or loss on expense accounts, shall be corrected.
10. Salesmen shall be given either a contract, agreement, or letter covering those conditions of his employment which might otherwise be the basis for later misunderstandings.
11. If quotas are used—
 - (a) Salesmen should know how their figures have been determined, and
 - (b) The quotas shall be based on reliable seasoned personal evaluation of accurate and adequate criteria.
12. A salesman whose health or well being gives evidence of being prejudiced by the nervous tensions involved in his work, shall be given such relief as may be possible.
13. Pressure to achieve results shall be of a constructive nature, avoiding the use of "fear" psychology or threatened loss of employment.
14. No matter where a salesman may be located, he shall be provided with a simple means of stating his grievances, which shall be promptly considered and answered.

(Prepared by National Federation of Sales Executives
"Employment Standards Committee")

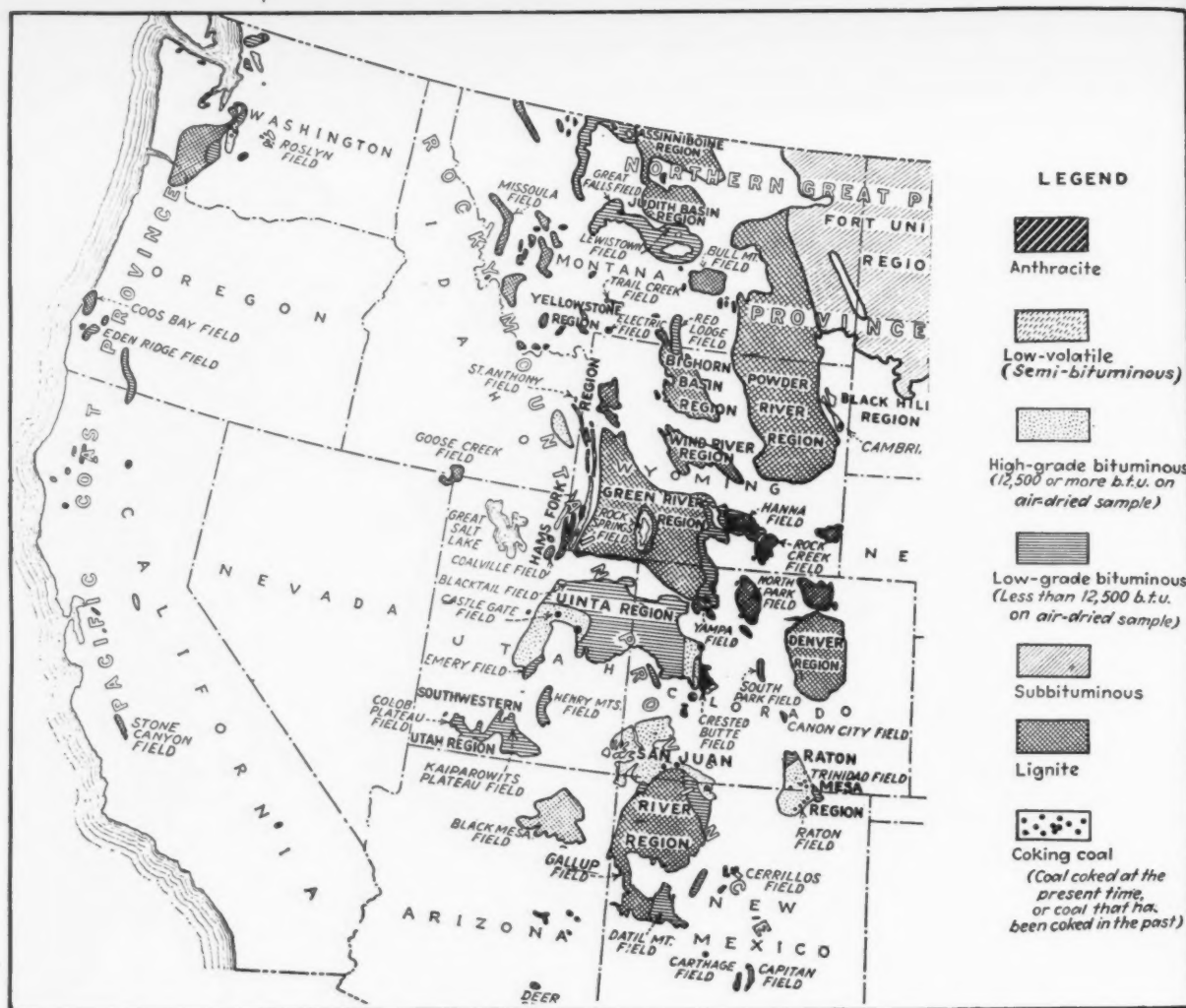
ern techniques of recruiting, selection, training, supervision, incentives and counseling.

But the second category of *intangible* services cannot be bought for dollars. Money alone will not buy any man's deep-seated emotional confidence. To get such service we must earn it by giving that salesman a sense of belonging, of participation and a feeling of basic security and confidence.

Before we can face the NLRB or any other agency and feel secure in classifying our salesmen as a unit of management, I suggest that we first make sure that we are

earning the right to do so by dealing with them as a part of management. If we fail to do this, I claim that we will prejudice our rights to anything more than what we pay for, which is the salesman's *tangible* services—his *labor*. If we fail to do this, the knowledge of our past mistakes in dealing with foremen will have served no useful purpose.

I hope that we may have the wisdom to adopt preventive techniques in the case of our salesmen employees — and now, while we can do so constructively, rather than later, when we must do so defensively.



COAL FIELDS IN THE WESTERN STATES

Future Prospects For Western Fuel Supply

By V. F. PARRY
Supervising Engineer
Subbituminous Coal & Lignite Section
U. S. Bureau of Mines, Golden, Colorado

BY ABOUT the year 1975, it may be estimated that the total demand for energy in the eleven Western states will be approximately 37 per cent above 1945 and 1946, and that 65 million tons of coal a year may be converted to liquid

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fuels, if we accept certain assumptions indicated by current trends regarding population, industrial production and efficiency of fuel utilization.

This is based on the expectation that the population will increase from an estimated 16,600,000 in 1950 to 22,000,000 in 1975

(the rate of growth has averaged 225,000 a year for the last 18 years), and a normal index of industrial production of about 220 if the 1935-1939 period is considered equal to 100.

Estimated energy production in the eleven Western states would then be divided up as follows:

Mr. Parry received his B.S. degree in engineering from the University of Utah and his M.S. degree in coal chemistry a year later at Carnegie Institute of Technology. From 1923 to 1931 he was in charge of research on carbonization and gasification of coal for the Henry L. Doherty Company, New York City, where he developed processes for the complete gasification of coal and the manufacture of smokeless fuels.



coal and the manufacture of smokeless fuels.

From 1931 to 1937 he was lecturer in the Division of Industrial Sciences of the University of West Virginia, where he conducted fundamental research on properties of coal. He also served for three years as special consultant to the state legislature on the industrial tax structure of West Virginia.

Since leaving the university in 1937 he has been supervising engineer of Subbituminous Coal and Lignite Investigations of the U. S. Bureau of Mines at Golden, Colorado. Under his direction there several processes for improving Western coals have been developed and 20 publications on various Western coal problems have been issued.

Probable tonnage production of coal in 1950 can be estimated by assuming the level of industrial activity. During periods of depression the production of coal per unit of industrial production increases, while in periods of high industrial activity it decreases. This is partly accounted for by the fact that the energy used for heating homes is nearly constant and is not affected much by the level of industrial activity.

Index and Energy Compared to Population

The index of industrial production is closely related to total energy produced, and both the average index and average energy expand in proportion to the population. By correlating the data for these three items, the trend in demand for industrial energy may be calculated, the energy required for domestic heating being subtracted from the total energy because the amount required for this purpose is more or less constant and equal to about 43,000,000 Btu. per person per year, or 3,300 pounds of equivalent coal.

This correlation shows that the demand for energy for industrial purposes in the United States has decreased from about 150 pounds of equivalent coal per capita per unit of the industrial production index to an average of about 80 pounds at the

Form	Trillion Btu.	Pct.	Unit
Hydro power.....	1,570	25.5	93 billion KWH
Gas	683	11.1	683 billion cu.ft.
Petroleum	2,500	40.5	420 million bbl.
Gas & oil from coal	702	11.4	117 million bbl.
Coal required.....			64 million tons
Coal, normal demand	705	11.5	30.8 million tons
Total	6,160		

Since 1922 the production of energy has increased at an average rate of about 90 trillion Btu. per year, equivalent to about 3,500,000 tons of coal, taking into account periods of boom and depression and the increased production for World War II. The maximum production of energy was attained in 1945, when 4,500 trillion Btu., or the equivalent of 172,000,000 tons, of coal was produced.

This increase in energy production has been in the higher-value fuels, oil, natural gas and hydro power, which forced coal production to decline at an average rate of about 13 trillion Btu. per year (500,000 tons of coal per year). Coal has hardly held its own since 1910, when production exceeded the present output of 26,000,000 tons, but the other fuels have continued to increase six-fold at an average rate of about 90 trillion Btu. per year.

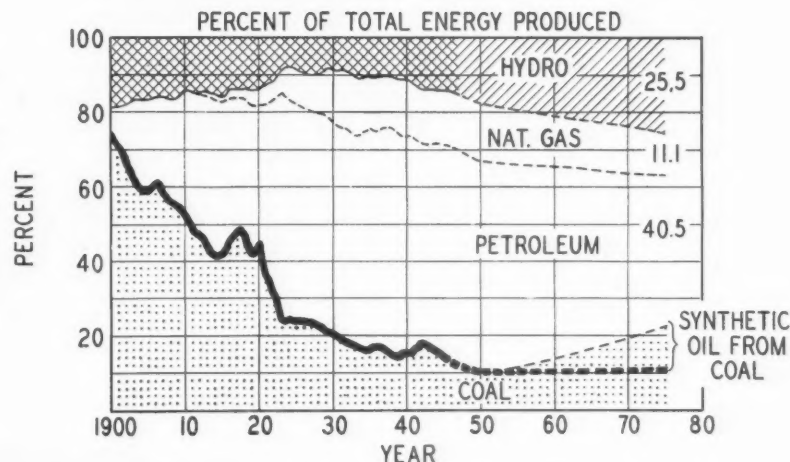
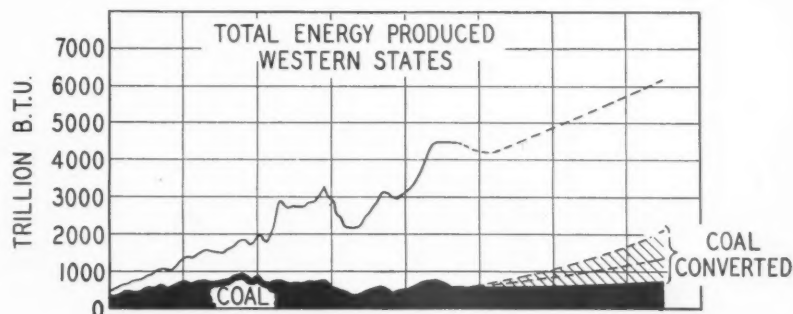
Coal in Western States

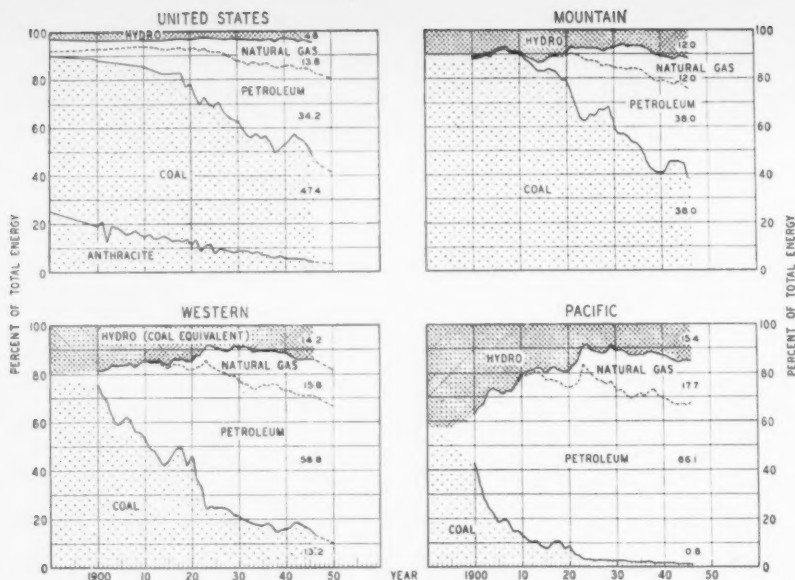
Although coal now supplies 47.4 per cent of all the energy produced in the United States, it constitutes only 13.2 per cent of energy produced in the Western states. In the mountain area, coal supplies 38 per cent of the energy, but on the Pacific Coast it supplies only 0.8 of 1 per cent.

Editor's Note: Although natural gas is an important fuel in California at the present time, Mr. Parry points out on page 41 that the importation of natural gas from Texas will be quite insignificant with respect to the total demand for fuel. He did not include an official analysis of this factor because of the length of time required to collect the necessary data.

Comparison of total energy production and the Federal Reserve Bank index of industrial production indicates that the two are related. For each unit of the former, coal production has decreased from about 500,000 tons in 1920 to 150,000 tons in 1946, and it is likely that as long as oil and gas are relatively plentiful, energy from coal for ordinary use will not exceed 140,000 tons per year per unit of industrial production, and it may drop to 125,000 tons.

TRENDS IN ENERGY PRODUCTION IN WESTERN STATES—1900 to 1975





B.T.U. EQUIVALENT OF FUELS PRODUCED—1890 to 1946

end of the war. On the same basis, the energy produced in the Western states has decreased from 210 pounds of equivalent coal in 1920 to about 100 pounds at the close of the war.

The downward trend in energy required to produce a unit of industrial production is due to mass production and to increased efficiency in the use of fuel. It is indicated that estimates of future production of energy in the Western states can be based on the assumption that 80 to 85 pounds of equivalent coal will be required per capita per unit of the index of industrial production. The following formula expresses a simple method for estimating the demand for energy when the index of industrial production and the population are known:

$$E = KPF + PD / 2,000 = P(KF + D) / 2,000$$

Where E=Total energy expressed as tons of equivalent coal of 26,200,000 Btu. per ton

K=Energy factor or industrial energy demand, expressed as pounds of equivalent coal per capita per unit of the Federal Reserve Board index of industrial production.

P=Population

D=Energy required for domestic heating. This is about constant and equal to 43 million Btu. per capita per year or 3,300 pounds of equivalent coal per capita per year.

F=Federal Reserve Board index of industrial production. This is an index of physical volume and is not corrected for population increase.

From the foregoing relationships, it is indicated that the index of industrial production in 1950 will average 190, the population 16,600,000 and the energy factor 82. Therefore, the normal demand for total energy in the Western states during 1950 is calculated as follows:

$$\begin{aligned} E &= P(KF + 3,300) / 2,000 \\ &= 16,600,000(82 \times 190 + 3,300) / 2,000 \\ &= 157,000,000 \text{ tons of equivalent coal} \\ &= 4,120 \text{ trillion Btu.} \end{aligned}$$

The present distribution of the different forms of energy produced in the Western states is: Hydro=14.2 per cent, Natural gas=15.8 per cent, Petroleum=56.8 per cent, and Coal=13.2 per cent. If this distribution is maintained during 1950, the following table gives an estimated production of each type of energy:

Form	Trillion Btu.	Pct.	Unit
Hydro power.....	583	14.2	54.3 billion KWH
Natural gas.....	650	15.8	650 billion cu.ft.
Petroleum.....	2,344	56.8	392 million bbl.
Coal.....	543	13.2	23.7 million tons ^{1/} (11,500 Btu.)
Total.....	4,120	100.0	

It is probable that coal's share of total energy will increase one or two per cent by 1950 during the readjustment period, and producers can look forward to a production of about 27,000,000 tons in the eleven Western states.

Trends in coal production in the different Western states show that the larger supply, 70 to 75 per cent, comes from Colorado, Wyoming, and Utah. The output from Colorado has decreased from about 35 per cent in 1922-1926 to 22.7 per cent in 1947, while that from Wyoming and Utah has increased from 38 to 54 per cent in the same period, the largest gain being in Utah. The trends indicate that in 1950 the probable 27,000,000 tons total output will be shared by the six Western coal producing states in about the following proportion:

^{1/} This production is equivalent to 125,000 tons per unit of the Federal Reserve Board index of industrial production. The average heating value of Western coal is about 2,000 Btu. per pound less than the average of eastern coal.

State	Per cent	Probable Production in 1950, tons
Colorado.....	21.7	5,860,000
Wyoming.....	30.5	8,240,000
Utah.....	26	7,020,000
New Mexico.....	4.5	1,210,000
Montana.....	14.3	3,860,000
Washington.....	3	810,000
		27,000,000

In competition for this business the tonnage will go to the producers giving the best quality of coal and service and the lowest cost per head unit.

Probable demand for the different forms of energy in the Western states in 1975 can be estimated from the trends if certain assumptions are made. The rate of growth of population in the eleven Western states has averaged 225,000 per year for the last 18 years. Although the rate of population growth in the United States is decreasing slightly each year, we assume that the growth in the West will remain at its present rate, and by 1975 the total Western population should be about 22,000,000.

The index of industrial production, which is an index of physical volume uncorrected for population increase, has advanced at an average rate of about 2.0 per cent per year since 1922. Because of the expanding demand for manufactured goods and services, major business disturbances disregarded, long-term change of the index can be expected to increase at about the same rate. Therefore, in 1975 the normal index of industrial production should be about 220, based on the index for the 1935-1939 period equal to 100.

$$\begin{aligned} \text{The demand for total energy} &= \\ &P(KF + 3,300) / 2,000 \end{aligned}$$

Therefore, if the energy factor "K" remains at 82 for the Western states as indicated in the accompanying chart, the total demand for energy in 1975 will be:

$$\begin{aligned} 22,000,000(82 \times 220 + 3,300) / 2,000 &= \\ 235,000,000 \text{ tons of equivalent coal} &= \\ (26.2 \text{ MM Btu. per ton}) \end{aligned}$$

Two hundred thirty-five million tons of equivalent coal equals 6,160 trillion Btu., the estimated production of total energy in 1975. This compares with 4,500 trillion Btu. produced in 1945 and 1946 and represents an increase of about 37 per cent.

The installed capacity of hydro-electric plants in the eleven Western states was 6,310,733 kilowatts in 1945, and by 1950 the Bureau of Reclamation expects the operating capacity to be 7,923,733 kilowatts based on the long-range program approved prior to appropriation reductions for 1948. This represents an increase of about 25 per cent, or an average of 5 per cent per year.

For the 10-year period, 1936 to 1945, the energy produced as hydro power increased from 297 to 627 trillion Btu. (expressed as the energy required to produce the same power using coal). This represents an average increase of about 10 per cent per year, largely due to the increased demand for power for war production.

From present trends it is indicated that production of energy in the form of hydro power will increase at a rate of at least 5 per cent per year. Therefore, by 1975 the energy from hydro power can be expected to approach 1,570 trillion Btu.

Oil and Gas Production

Owing to the declining rate of discovery of new supplies of oil and natural gas, it is assumed that oil and gas production will not be more than that produced during 1945-46 and will remain about the same until 1975. The oil produced in the Western states is now equivalent to 2,500 trillion Btu. (415 million barrels), and the gas amounts to 683 trillion Btu.

On the basis of a demand of 140,000 tons of Western coal per unit of industrial production, the projected index of about 220 for 1975 would give 30,800,000 tons of coal produced for ordinary domestic and industrial use, equivalent to 705 trillion Btu. Imported oil or additional coal for conversion to oil and gas will be necessary to make a heat balance and meet the demand.

The indicated energy picture for the Western states up to 1975 is shown in one of the accompanying charts. The demand for new oil and gas is estimated to be 702 trillion Btu. as shown in the heat balance of the table given earlier in this article.

Imports of gas from Texas fields will not change the picture significantly because a pipe line delivering 50,000,000 cubic feet per day would deliver only about 2 per cent of the increased demand. The coal required to make 702 trillion Btu. in the form of oil will be approximately 1,460 trillion Btu. or approximately 64,000,000 tons. Therefore, the total coal produced in the Western states in 1975 is estimated to be about 95,000,000 tons.

These basic fuel statistics show that coal mining has been virtually a static industry since 1910 while other fuels have expanded five-fold. The steady and rapid decline of energy from coal with respect to other fuels is due to its form value. Experience has shown that the public prefers clean, high-value forms of energy of specified properties and will continue to pay for these advantages. Ordinances for controlling smoke are now in effect in some large cities, and processing of some coals to reduce smoke is a prerequisite in meeting smoke regulations.

Despite all this, coal producers can take comfort in the thought that coal is the major basic raw material for manufacture of synthetic liquid and gaseous fuels. Therefore, although the present demand for coal is not high in relation to other fuels, the demand should soon increase for use in conversion to gas and oil. When this turn of events will become evident cannot be stated; but it should be in the

relatively near future of 10 to 15 years, and by 1975 the demand should be substantial.

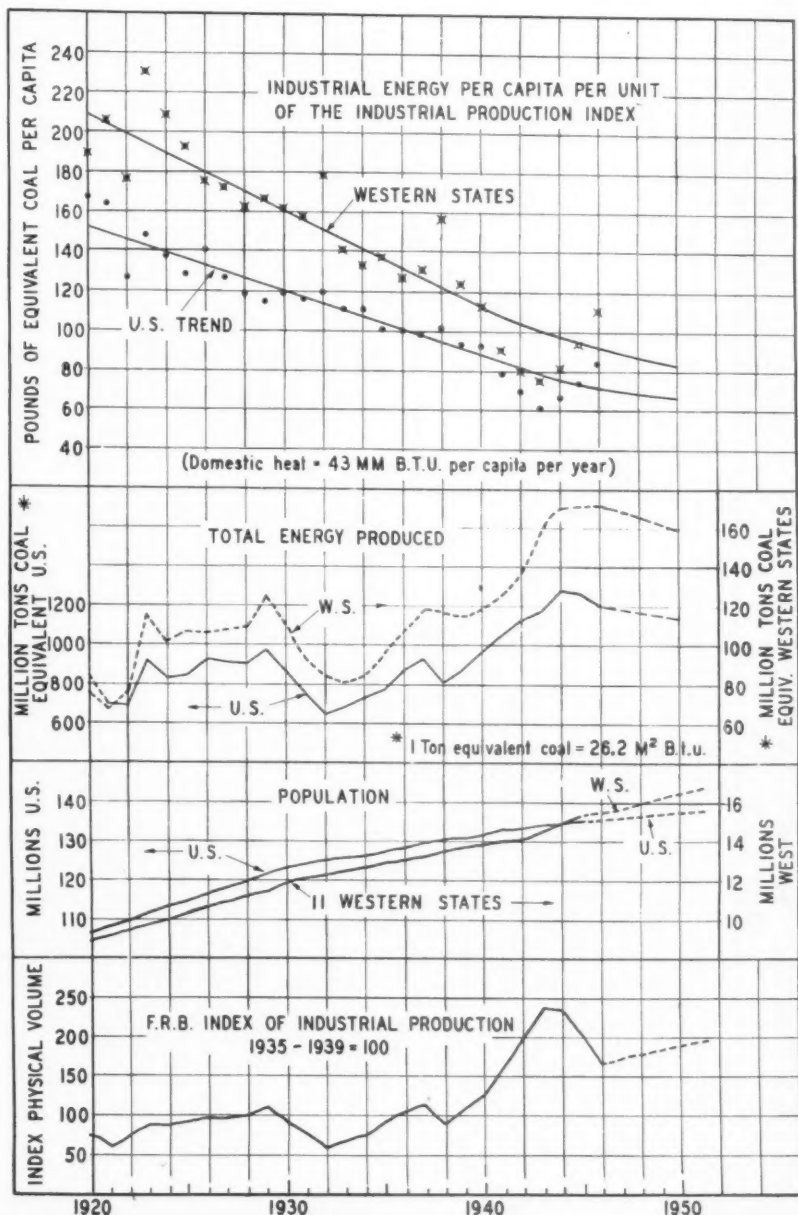
Supplementary supplies of gas from coal are now being developed to meet the increased demand for gas, and the demand for oil is increasing. Therefore, the nation must continue research and improve methods for converting coal to gas, oil, and smokeless fuel. The coal industry is already doing this to some extent.

The Bureau of Mines has conducted research work for many years on these problems and is now engaged in a research, development and demonstration plant program for producing synthetic liquid

fuels. The large oil companies working with the large coal companies are aware that coal is the major basic raw material for gas and oil, and much research and development work is being conducted in their laboratories; pilot plants are being constructed to convert coal to gas and oil.

At Golden, Colorado, and at Grand Forks, North Dakota, the Bureau of Mines is engaged in developing processes for carbonization and complete gasification of Western non-coking coals, and considerable research is now under way at several Western universities. Coal producers will profit by supporting long-range research on the conversion of coal to gas and oil.

TRENDS IN ENERGY PRODUCTION



NEW PRODUCTION TECHNIQUES

Mechanized Welding Earns a New Job

By EARL GRIFFETH

Plant Superintendent
Wooldridge Mfg. Co., Sunnyvale, Calif.

WELDING is the most practicable method of fabrication in the construction of earth-moving equipment, as exemplified in the Terra Cobra scraper manufactured in our plant.

Extensive use of mechanized welding and cutting, along with adequate jigs and fixtures required for maximum efficiency are featured in the welding operations. The ship-builders' secret of welded sub-assemblies, joined by welding in the final assembly, is employed to the limit and as many parts as possible have been designed for manufacture from flame-cut steel plate or simple rolled shapes by mechanized welding.

The Unionmelt electric welding process is used extensively in the fabrication of subassemblies for various pieces of equipment. These subassemblies are then joined by manual arc welding to make the com-

pleted assemblies. The Terra Cobra scraper is an example of a great many simple fabricated subassemblies welded into one rigid complex unit.

In every shop where steel is fabricated, oxy-acetylene cutting is an important fabrication tool. The accuracy obtained with this process permits close fit-up and thereby reduces shrinkage stresses and minimizes warpage. Manual cutting is used for cutting small parts and trimming for fit-up. Mechanized oxy-acetylene shape cutting is utilized for forming virtually dozens of different pieces for fabricating into sub-assemblies.

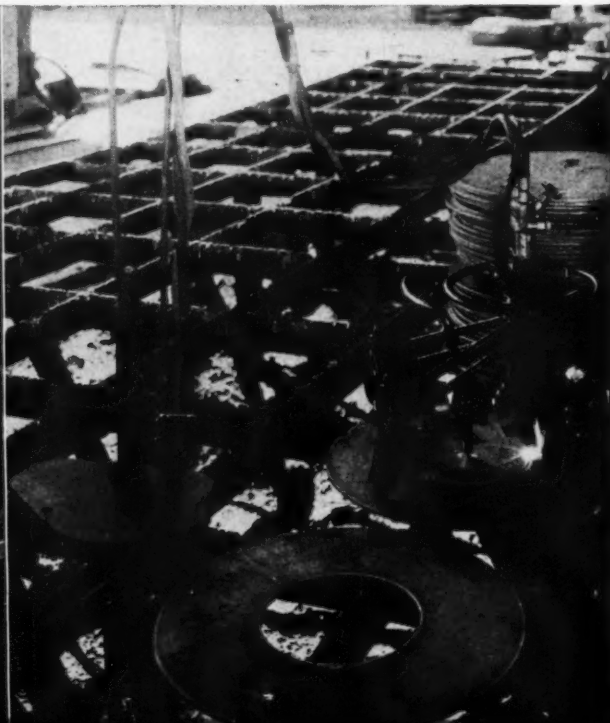
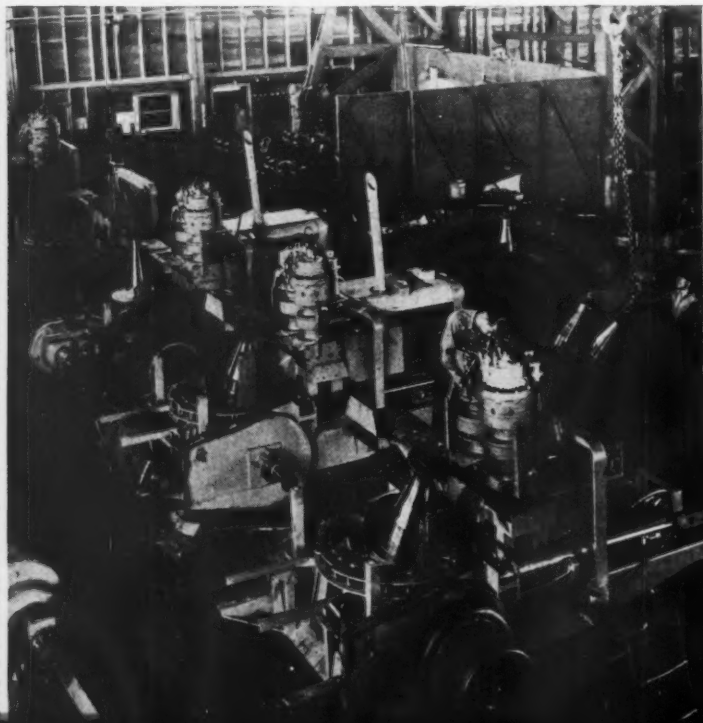
Two stationary oxy-acetylene shape-cutting machines and 15 portable cutting machines are used in this work. With these machines and a number of hand-cutting blowpipes, a burning crew of 29 men, including a shear man and two shear help-

ers, processes 25 tons of steel sheet and shapes per eight-hour shift from stockpile to storage, ready for assembly. Over 80 per cent of this material is cut with the oxy-acetylene process. About 15 per cent of the steel processed is scrap material.

An interesting subassembly is the main drive wheels. These wheels accommodate a 21.00 by 24 earth-mover tire. They are so nearly complete after welding, that the only finishing necessary is the boring of the hub for bearing cups and drilling of the flange for the sprocket gear. In all, 24 different types of wheels are manufactured from shape-cut steel plate by Unionmelt welding.

Wheel fabrication begins with the cutting of disks from $\frac{3}{8}$ -in. steel plate. This operation is performed with a CM-16 portable cutting machine. The same machine is then used for cutting out the cen-

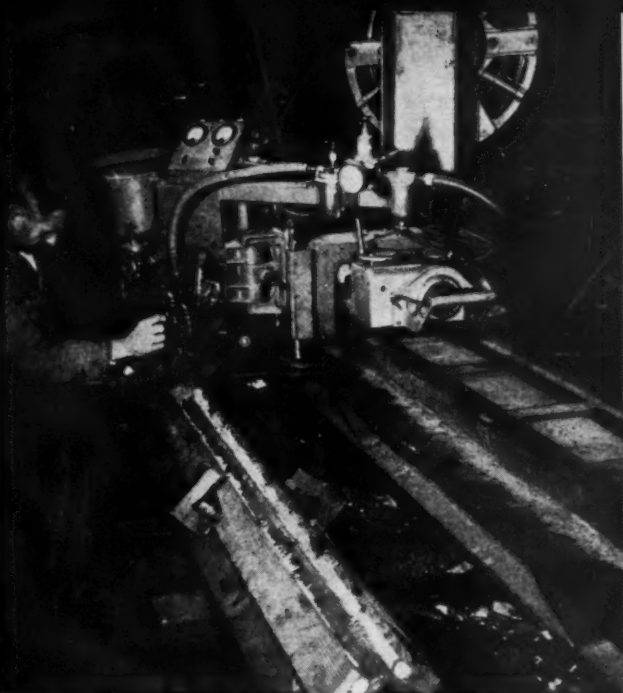
• (Left) This Terra Cobra scraper tractor-unit frame assembly line is an example of many fabricated sub-assemblies welded into one unit. (Right) An operation in wheel fabrication shows a CM-16 portable cutting machine cutting centers to form a steel ring.



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• (Left) The box beam sub-assembly shown above is manufactured from two angles by corner welds joining legs. Note detail of wood and asbestos rope melt retainers. (Right) This fixture for making welds is rotated by motor-driven positioner on which it is mounted.

ter to form a steel ring. These particular disks are $23\frac{3}{8}$ in. in diameter with an $8\frac{1}{4}$ -in. diameter center hole.

Tire flanges are cut out two at a time on a CM-12 shape-cutting machine. The blanks are sent to the forge shop where they are pressed to shape. They are then returned to the shape-cutting machine for a final trimming to correct outside diameter.

In the welding of the flange ring bases, flat bars from one inch by $2\frac{1}{2}$ in. are first rolled to the desired diameter and a welding vee prepared at the joint. The rings are then strung side by side over a copper chill bar. One manual weld pass ties the group into one piece and forms a backing for the final two-pass Unionmelt welding operation. The rings are then broken apart and machined to finished dimensions.

When trimming the hub subassembly, the hub is set over a cone centering device. Another cone is set on top to provide a table for the traction wheel which rotates the blowpipe. The drive unit itself is adapted from a portable cutting machine. The wheel and cutting blowpipe are mounted on a turntable so that the entire setup can be rotated as well, thus avoiding twisting of the oxygen and acetylene hoses.

In the actual welding of the blade base, which is made from 1-in. plate stiffened with a piece of $\frac{5}{8}$ -in. plate and a split 10-in. H-beam, the Unionmelt welding head is mounted on a cutting-machine carriage and the melt is retained at the weld zone by an asbestos-lined wood retainer clamped to the steel plate. The blade base is suspended between two tripod supports by forks which are inserted into the ends

of the base. The work can be rotated and locked in position for making successive welds.

Advantage is taken of the natural weld distortion to produce the parabolic curve on the leading edge of blade base. Because this member is automatically welded, and the speed and current values are the same on successive bases, the distortion is also the same. This makes it necessary to set only about one out of 50 bases. After the blade base is welded, the leading edge is beveled by a CM-30 portable straight-line cutting machine on the setup. The bevel is not straight but has a predetermined parabolic curve. The track bent to the necessary arc guides the machine in making this curve.

The yoke arms are essentially box beams made of $\frac{1}{2}$ -in. side plates, flame-cut to shape, and $\frac{1}{4}$ -in. flat bars. The arms are fabricated by a Unionmelt weld at each of four corners.

A scraper is connected to its two-wheeled tractor unit by means of a king pin operating in the vertical hub. Universal motion is obtained by a rocker connection between the king pin and the frame of the tractor unit. The king pin itself is forged from 4140 steel, and Unionmelt welded to a mild steel bearing plate three inches thick. The principal purpose of this bearing plate is to provide mild steel for good weldability in attaching the ears through which the rocker pin passes. Before welding, the parts are rough-machined to form the joint preparation.

The beating ring and pin are then pressed together and preheated in a furnace at 400°F . The assembly is then placed in the fixture which is rotated by means

of the motor-driven positioner on which it is mounted. The same fixture is used for making welds on the other side in accordance with a predetermined sequence. About 45 minutes are required to complete the welding.

Another interesting subassembly is the box beam. It is manufactured from two angles by corner welds joining the legs. The melt retainers are made of strips of wood faced with asbestos rope, and are held in place by wedges and clips tack-welded to the beam.

The remarkable records made by some of the shipyards during the war can be largely attributed to the fact that these yards were laid out for welded ship fabrication instead of being adapted to that purpose, as was the case with some of the already established yards. The flow of raw materials to subassembly points and of the subassembly points and of the subassemblies to the final assembly station is as important in a manufacturing plant as it is in a shipyard, and it is one of the principal factors in effecting the efficiency of the operation.

Fifteen tons of steel are used in the manufacture of this unit, and about 1,500 man hours are required for the processing of this steel. An approximate distribution of this labor would be: cutting and shearing, 8 per cent; forming, 2 per cent; fitting, 1.5 per cent; welding, 44 per cent; machine work, 23 per cent; and assembly, 20 per cent. Each unit required about 1,352.6 linear feet of oxy-acetylene cutting, 1,054.8 linear feet of manual arc welding, and 327.6 linear feet of Unionmelt automatic electric welding.



Preventing Rubber Conveyor Belt Troubles

By W. S. LONG
Pacific Coast Mechanical Goods Manager
U. S. Rubber Company

• This rubber belt conveyor does heavy duty in keeping coal moving at loading station.

WHEN a rubber conveyor belt breaks down, chances are it had two strikes on it from the start: either it was the wrong type for the job, or it was installed improperly. Or perhaps the operator just did not heed the manufacturer's instructions.

Almost all belt failures can be traced to one of these three causes, each one of which can be foreseen and prevented by the owner before he spends his money. The specific causes of these failures are illuminating and point a moral for the prospective user. The following reasons are representative of those revealed in a recent survey.

1. Buying the wrong grade belt, one not suited to the work expected.
2. Injury to belt by carelessness in putting it into place on the conveyor system. Cover and edges torn.
3. Splice not square with belt. Belt runs crooked and wears edges.
4. Material too hot. Burns holes in belt.

5. Skirt plates too long or badly set. Belt cut.

6. Loading the belt directly over idler. Belt cut.

7. Excessive take-up tension; belt stretches and splices pull out.

Decking not used, pulley lagging, wrong belt to handle moist substances. These and other causes point to one single remedy. It is of utmost importance to ask for and follow the advice of the manufacturer's experts in buying the right belting for difficult and unusual conditions.

The rubber engineer has an exhaustive backlog of experience in application, which every prospective user would do well to capitalize on. He applies to the particular problem the three basic designs: The pulley troughed conveyor with flat return idler, the flat belt operating over a drag bed, and the elevator belt with "continuous buckets." There are, of course, infinite varieties of these basic types.

To operate efficiently, the experts say, a belt conveyor should be designed to operate fully loaded at the highest possible speed in keeping with satisfactory loading and discharge. Factors affecting the amount of material handled by a trough belt conveyor of a given width are: (1) Speed of belt. (2) Type, size, angle of idlers. (3) Angle of inclined belt. (4) Method of uniform loading. (5) Physical properties of materials handled. (6) Evenness of belt travel.

Using tons per hour as a measure of capacity, the accompanying table permits selection of the proper width and speed of belt for required capacities and for given sizes and weights of materials.

The rubber engineer, however, has innumerable more factors to consider. Those mentioned are merely revealing of the care which goes into successful operation. Care must be given to the factors of installation. Selection of ducks and plies are based on carefully checked experiences. The same

with the belt cover, and in the case of elevator belts many special considerations come into the picture.

The foundation of most rubber belts is a woven cotton duck especially designed for its purpose.

Transmission belt duck must have strength lengthwise to carry the load, flexibility to pass over pulleys, and its weave must permit perfect impregnation with rubber "friction"; it must have strength crosswise to hold the belt-fasteners and give body to the belt.

Conveyor belt duck is designed for the same requirements described above, except that greater flexibility crosswise usually is necessary to assure proper troughing over the idlers. Provision also is made to have the duck sufficiently strong yet elastic enough to withstand the impact stresses caused by the falling of lump material onto the belt at the loading point, and to prevent penetration of the belt by sharp lumps or material that may build up between the pulleys and the belt.

Elevator Belt Duck

Elevator belt duck, in addition to longitudinal strength, must have "body" to hold the bolts required for fastening the buckets. The operating conditions are subject to more variation than is the case with either transmission or conveyor belts, and hence the ducks for elevator service are particularly special in design.

In many conveyor and elevator belt installations it is good practice to include a breaker strip, consisting of an open weave fabric, placed outside of the duck carcass and underneath the rubber cover, on one or both sides of the belt. Its purpose is to provide a stronger bond between the cover and the carcass. It is recommended where severe cutting and gouging conditions are encountered.

The rubber friction serves to unite the plies of duck into the finished belt, at the same time permitting sufficient freedom between the plies to assure a unified structure capable of conforming to the distortions over pulleys without mechanical breakdown. It is essential that the friction not only penetrate throughout the duck, but also that it be of such character and thickness that the belt will stand up serviceably under repeated flexing.

Most transmission belts are furnished "friction surface," meaning that no extra rubber is added to the surface of the belt. In conveyor and elevator belt installations a rubber cover usually is provided to protect the carcass against abrasion and deterioration. Various qualities and thicknesses of covers must be established to meet the many varying operating requirements.

Once the proper belting is selected and correctly installed, it remains only for the operator to give it the proper care and your conveyor belt problems are solved.

CARRYING CAPACITY TROUGHED BELTS

TABLE F

Width of Belt Inches	Tons (2,000 lbs.) of Material per Hour at 100 F.P.M. Belt Speed							Maximum Size of Material, Inches	
	Weight of Material, Lbs. per Cu. Ft.							Mixed with Fines	Uniform in Size
	30	40	50	75	100	125	150		
12	7	10	12	18	24	30	36	2	1½
14	10	14	17	25	34	42	51	3	2
16	13	18	22	33	44	55	66	4	2½
18	17	22	28	42	56	70	84	5	3
20	20	27	34	51	68	85	102	6	3½
24	30	40	50	75	100	125	150	8	4½
30	47	63	79	118	158	198	237	12	6
36	69	91	114	171	228	285	342	15	8
42	97	130	162	243	324	405	486	18	10
48	130	172	215	322	430	538	645	22	12
54	162	215	270	405	540	675	810	25	13
60	207	275	345	517	690	862	1035	28	15

Tonnage capacity proportional to speed, e.g. at 200 F.P.M., tons per hour = twice table values.

A Warehouse For Speedy Handling

VARIOUS features to simplify materials handling, including a short assembly line for merchandise orders that reduces walking and trucking distance to a minimum, are embodied in the new wholesale grocery warehouse of Tiedemann & McMorran, San Francisco.

From a three-story building which presented difficult problems in assembling and handling merchandise, they moved a few months ago into a two-story warehouse alongside Pier 56.

The new quarters had the unusual advantage of a street approach for motor trucks on one side of the ground floor, a spur track paralleling the other side, and a ramp above the spur track providing truck approach to the second floor. Thus the building was well suited to using the ground floor for receiving, storage and outgoing rail shipments, while the second floor could be devoted to the truck shipping department.

Although the building has interior pillars that necessitate using a 36x36 pallet instead of the 36x40 size that is most advantageous for grocery shipments, it is otherwise well adapted to the needs of the firm. Consequently it was possible for Raymond C. Gorham, general superintendent, to make use of numerous ideas gained in the period of several years that he had charge of the Army's 16 subsistence warehouses at the Oakland Quartermaster Depot.

Segregation of canned goods and other merchandise for the assembly line begins at the motor truck and rail carrier receiving platforms, located on opposite sides of the building. Motor truck drivers unload directly onto skids in accordance with specific instructions from the warehouse office upstairs, and the lift truck operators who run their machines into the box cars also sort onto skids.

The storage floor is divided into numbered bays, lanes and sections with the space for each skid marked off by painted lines at the front and sides. Lift truck operators are required to set their skids down in alignment with the line at the left of the space, thus insuring at least four inches of clearance between stacks and avoiding the danger of having space for a skid eaten up by careless spotting. Each section also has corner boards to prevent cartons or other containers being damaged.

Orders for rail shipment are loaded back from the storage department into box cars, while outgoing truck shipments are lifted to the assembly floor by an elevator accommodating nine skids.

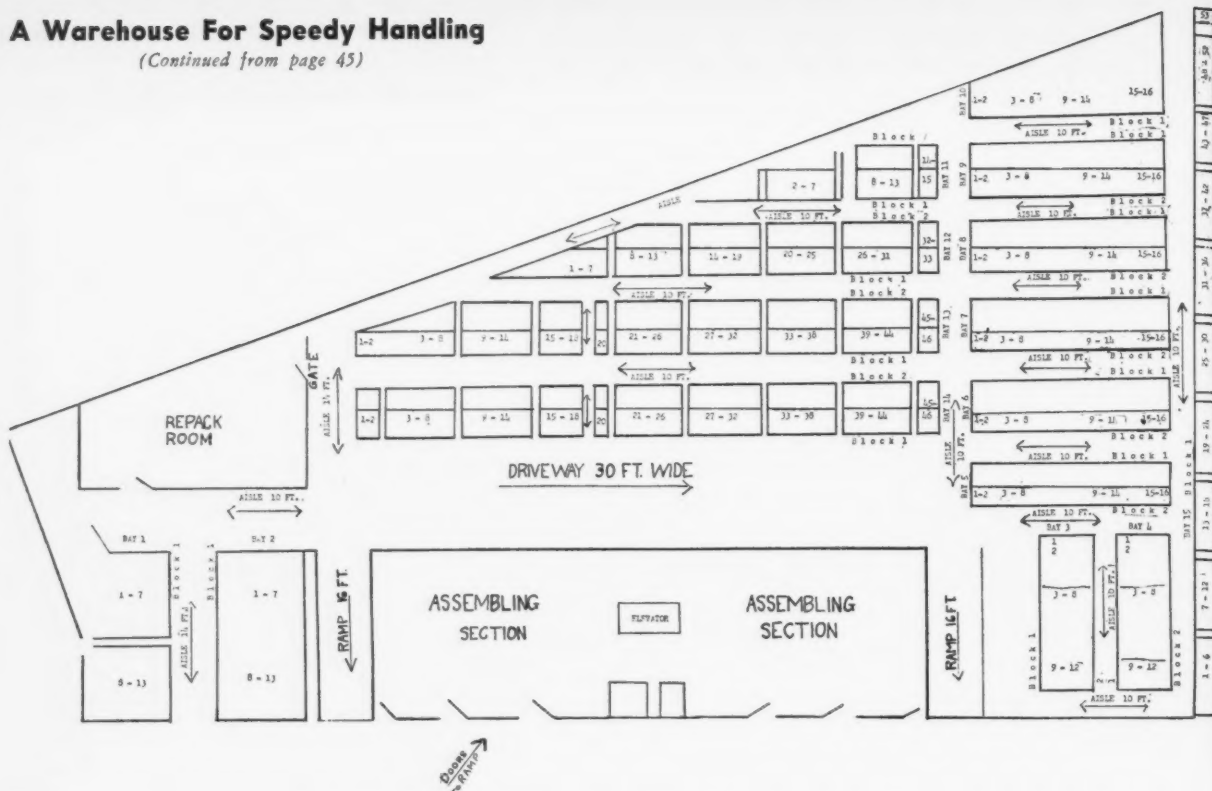
In the assembly line, merchandise is arranged in alphabetical order of commodities, beginning with canned asparagus, and continuing through beans, corn, and so on.

Each commodity has a code number hung on a horizontal wire extending the

Wherever materials are to be handled, there some business organization is either making or losing money, perhaps an amount large enough to mean the difference between profit or loss on the entire operations of the company. For that reason, "Western Industry" provides a continuous editorial service to its readers on materials handling developments and problems. The accompanying article is another of "Western Industry's" regular features on the subject of materials handling.

A Warehouse For Speedy Handling

(Continued from page 45)



* Floor plan of the warehouse shows each bay divided into numbered bins or sections, sized according to products stored. For example, a certain brand of cherries might be indicated as in Bay 14, Block 1, No. 23. Ample aisle space makes locating it easy.

length of the line, and within the space allotted to each commodity the goods are arranged according to popularity of brands, Sun Blest coming first, then Above Par, and next in succession Chef's Choice, T & M, Rose Bowl and Success. Cartons are stacked on skids arranged in groups of three, one in front and two high behind.

Cut-offs between lanes are provided so that a complete tour of the floor is avoided if the assembler has no pick-ups to make beyond a certain point. At the head of the line is the re-pack or broken case room, where small lots are assembled in a box bearing the name of the driver serving the customer in question and deposited on a set of shelves facing the trucking aisle.

Orders are written up alphabetically by the salesman, with the code number included, so the assembler starts his load with the first order on the sheet and follows with the second. This not only saves the assembler's time in finding the order on the sheet and enables him to move straight through the assembly line, but also eliminates any necessity for back-tracking.

The assemblers use electric transporters and hand dollies. The transporters are equipped with wheels at the end of the forks, so that their loads can be set down on skids without the need of using a pallet as an intermediate step in handling.

Fast-moving merchandise is concentrated in the center aisles in the assembly department, slow moving goods against the wall, while sacked goods are stored near the assembly point so they do not have to be moved far. Sacked goods are put on boxed skids, to prevent the sacks being torn by the forks. It was found that such damage resulted not only because the sacks bulge over the side of an ordinary skid, but also because they bulge out below where even the most careful operator cannot avoid damage. On top of each boxed pallet rests an ordinary pallet.

Orders are written in triplicate. The top (white) copy is delivered to the customer by the driver; the second (blue) is kept in the office; the third (yellow) goes to the assembler. He leaves the yellow sheet at the assembly point when the order is complete.

If the order is short because some item in the assembly line is out, he notes the shortage on a smaller yellow sheet clipped to the order form. The shortage is referred to the shipping office, which has a large blackboard on which all short items are listed as either completely out, or the actual quantity on hand is specified.

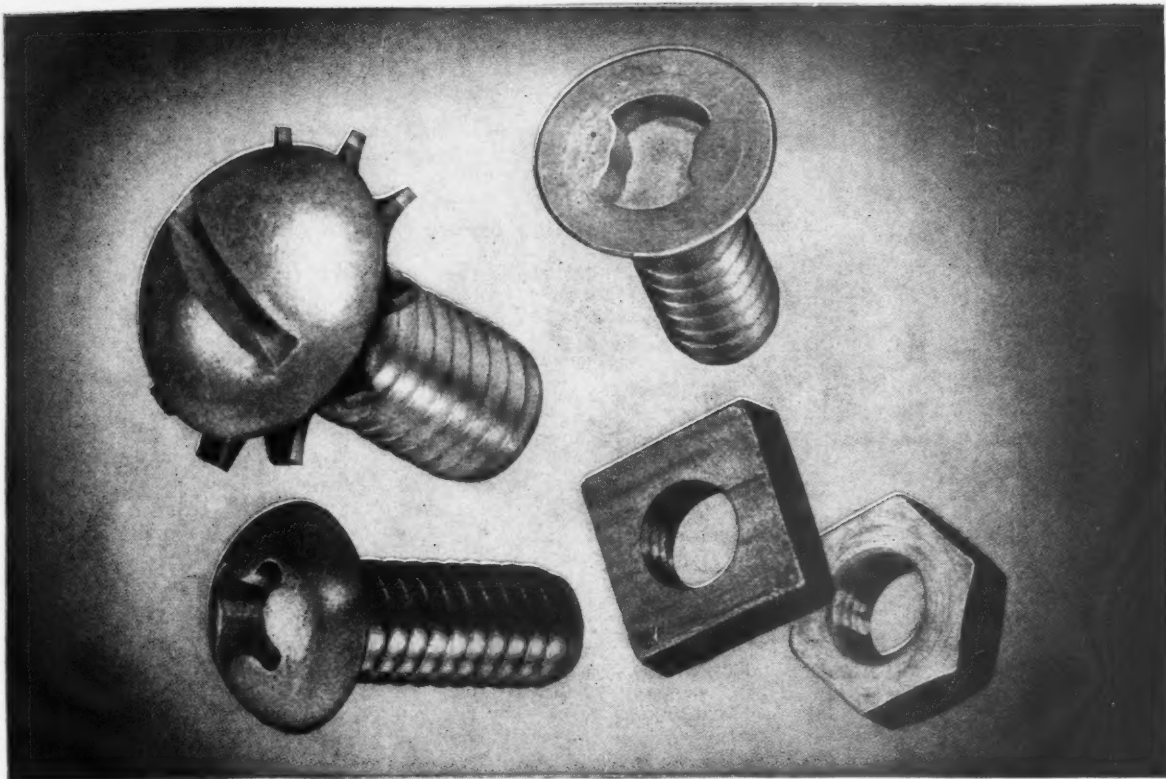
If the shortage can be remedied by replenishment from the shortage floor below, the order is held up only temporarily; if not, the order goes out short. When the

driver delivers the order, the customer signs the yellow form and it comes back to the office to serve as a receipt.

Routing of the load is accomplished by lining up each driver's orders in a row extending back from the loading door, arranged in order of delivery. The last order to go into the truck, and therefore the first to be taken out, is placed at the head of the row. Consequently the load is made up by beginning at the end of the line which is farthest from the door.

The key to this routing is a sorting box in the shipping office divided into compartments into which the orders are sorted by the drivers. Each driver has a horizontal row of compartments across the box, the first compartment for the current day, in which orders being loaded are kept. Next is the compartment for the following day's orders, in process of being assembled. After that comes two more compartments for the succeeding days.

Tiedemann & McMorran's expanding operations are carried on in the warehouse by seven assemblers for city deliveries and three for country shipping, four men on the storage floor, five lift truck operators, one re-pack man, a receiving clerk, two checkers, an assistant superintendent on each floor and a third assistant superintendent for country and government shipments, and the general superintendent, Mr. Gorham.



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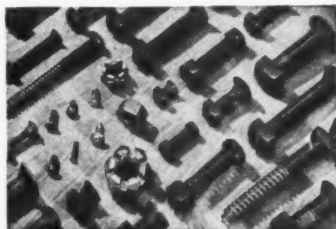
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One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

West Must Fight To Get More Steel

To get basing points revised and grey market squelched will take pressure from steel users

By ARNOLD KRUCKMAN
Washington D.C. Editor of
Western Industry

WASHINGTON, D. C. — We Westerners here in the capital hope that when Frank McKee, manager of the Washington office of the San Francisco Chamber of Commerce, is back home in the Bay Cities region over the holidays on a combined business and vacation trip, he will be successful in explaining the steel picture here.

We hope he will make clear to Louis Lundborg, his immediate boss and also president of the Western States Council, that something should be done immediately and vigorously in Washington to show that the Western commercial organizations are actively and vitally interested in the various steel problems that are bothering the representatives of the West here in and out of government.

In the present situation every official of Western commercial organizations has a direct tie-in with the Western States Council, and other similar representative units, but none of them are authorized to do anything about the steel problems. They are in the position of those delegates to the United Nations who are empowered to "observe," but are not authorized to act.

If you know your Washington, which certainly should be the case after all the scolding many of us have done, you should emphatically realize that official Washington does nothing until it feels the pressure from those most interested. If you people who use steel, or steel fabrications, or equipment and other things made of steel, wish more steel, less costly steel, and wish lower freight rates on steel transport, you should see to it that those who are responsible for your collective business here make the capital understand your points of view on the basing point discussion, on the grey and black market operations, and on the litigation which has been the puzzle of the Department of Justice.

On December 19, just before Christmas, the Federal Trade Commission was to hold a hearing on the steel price-fixing complaint involving the American Iron & Steel Institute and the 101 steel producers of the nation. It was to require the steel barons to show cause why they should not be ordered to cease and desist their present practices and there is every reason to believe a separate action will be brought against iron producers. Under the present action virtually all ingot producers of the nation must defend themselves.

Western Interest in Basing Point System

The chief interest of the West in the FTC action is what it may do to the moot and long-fought basing point system. The FTC charges that steel buyers, particularly those in the 11 Western states, are deprived of equal opportunities to obtain steel in times of scarcity. The complaint stresses that producers refuse to quote and sell f.o.b. mill.

Each of the 101 producers, it is alleged, quotes prices as though shipments were made from mills east of the Rockies, despite the fact that many deliveries are made from mills west of the Rockies, and, in some instances, right at the front door of the customers. The complaint also charges the producers with conspiring to prevent increase in steel production, which, of course, has a bearing on the incredible operations of the grey and black markets.

It was anticipated that the hearing in December would be short; primarily because all proceedings during the holiday season are almost invariably brief; and, secondarily, because it is confidently assumed this entire process will be slow and take considerable time. But among

those in the know there seems little doubt that the FTC will achieve its ends eventually.

There are strong indications, it is reported, that the Sparrows Point basing point rate will be made effective to such an extent that the West Coast will have the advantage of the low water rate in shipping steel from the east. We are told that the imminence of cargoes from the Maryland steel port already has caused eastern distributors with warehouses on the West Coast to arrange to shift their operations elsewhere.

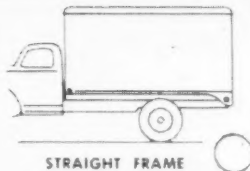
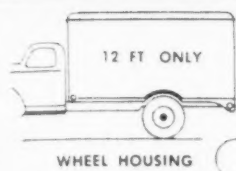
Obviously, the Geneva basing point rates, implicit in the agreement between U. S. Steel and the Government at the time of purchase, as well as the Sparrows Point rates, and the further modifications which would follow the FTC proceedings, will throw a monkey wrench in the Kaiser-Fontana program. Kaiser, as you know, maintains that the high cost of the charges placed upon Fontana by the Reconstruction Finance Corporation, forces him to exact high prices from steel buyers in the West, and elsewhere.

There appears no reason to assume the Department of Justice will attempt to override the U. S. District Court decision that the anti-trust laws had not been transgressed when the U. S. Steel proposed to acquire Consolidated Steel. In a similar case involving another agency of the government the Department of Justice made clear that it did not think it could successfully prosecute in the light of the Consolidated ruling.

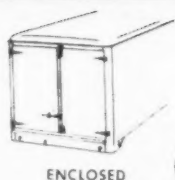
Attorney General Clark has frequently made public statements reflecting his earnest desire to help the steel users of the West. Some of his assertions have led to the optimistic impression that the Department of Justice would do something to afford relief. However, the prevailing

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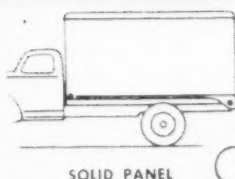
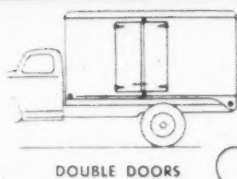
2 BODY TYPES



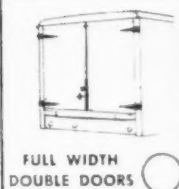
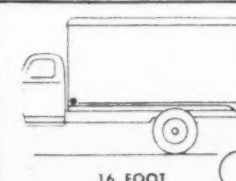
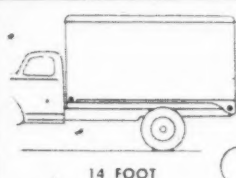
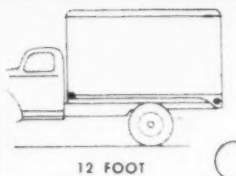
2 ROOF OPTIONS



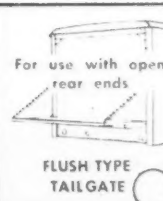
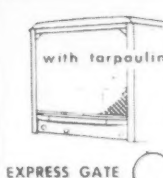
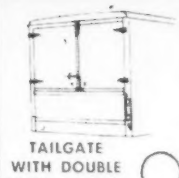
2 ROADSIDE PANELS



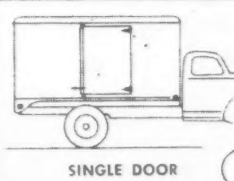
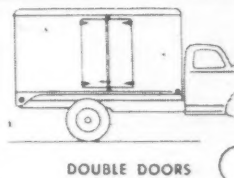
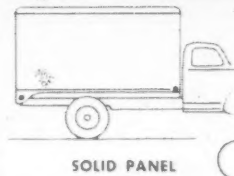
3 LENGTHS



8 REAR END DESIGNS



3 Curbside Panel Options



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FRUEHAUF TRUCK BODIES

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

West Must Fight To Get More Steel

To get basing points revised and grey market squelched will take pressure from steel users

By ARNOLD KRUCKMAN
Washington D.C. Editor of
Western Industry

WASHINGTON, D. C. — We Westerners here in the capital hope that when Frank McKee, manager of the Washington office of the San Francisco Chamber of Commerce, is back home in the Bay Cities region over the holidays on a combined business and vacation trip, he will be successful in explaining the steel picture here.

We hope he will make clear to Louis Lundborg, his immediate boss and also president of the Western States Council, that something should be done immediately and vigorously in Washington to show that the Western commercial organizations are actively and vitally interested in the various steel problems that are bothering the representatives of the West here in and out of government.

In the present situation every official of Western commercial organizations has a direct tie-in with the Western States Council, and other similar representative units, but none of them are authorized to do anything about the steel problems. They are in the position of those delegates to the United Nations who are empowered to "observe," but are not authorized to act.

If you know your Washington, which certainly should be the case after all the scolding many of us have done, you should emphatically realize that official Washington does nothing until it feels the pressure from those most interested. If you people who use steel, or steel fabrications, or equipment and other things made of steel, wish more steel, less costly steel, and wish lower freight rates on steel transport, you should see to it that those who are responsible for your collective business here make the capital understand your points of view on the basing point discussion, on the grey and black market operations, and on the litigation which has been the puzzle of the Department of Justice.

On December 19, just before Christmas, the Federal Trade Commission was to hold a hearing on the steel price-fixing complaint involving the American Iron & Steel Institute and the 101 steel producers of the nation. It was to require the steel barons to show cause why they should not be ordered to cease and desist their present practices and there is every reason to believe a separate action will be brought against iron producers. Under the present action virtually all ingot producers of the nation must defend themselves.

Western Interest in Basing Point System

The chief interest of the West in the FTC action is what it may do to the moot and long-fought basing point system. The FTC charges that steel buyers, particularly those in the 11 Western states, are deprived of equal opportunities to obtain steel in times of scarcity. The complaint stresses that producers refuse to quote and sell f.o.b. mill.

Each of the 101 producers, it is alleged, quotes prices as though shipments were made from mills east of the Rockies, despite the fact that many deliveries are made from mills west of the Rockies, and, in some instances, right at the front door of the customers. The complaint also charges the producers with conspiring to prevent increase in steel production, which, of course, has a bearing on the incredible operations of the grey and black markets.

It was anticipated that the hearing in December would be short; primarily because all proceedings during the holiday season are almost invariably brief; and, secondarily, because it is confidently assumed this entire process will be slow and take considerable time. But among

those in the know there seems little doubt that the FTC will achieve its ends eventually.

There are strong indications, it is reported, that the Sparrows Point basing point rate will be made effective to such an extent that the West Coast will have the advantage of the low water rate in shipping steel from the east. We are told that the imminence of cargoes from the Maryland steel port already has caused eastern distributors with warehouses on the West Coast to arrange to shift their operations elsewhere.

Obviously, the Geneva basing point rates, implicit in the agreement between U. S. Steel and the Government at the time of purchase, as well as the Sparrows Point rates, and the further modifications which would follow the FTC proceedings, will throw a monkey wrench in the Kaiser-Fontana program. Kaiser, as you know, maintains that the high cost of the charges placed upon Fontana by the Reconstruction Finance Corporation, forces him to exact high prices from steel buyers in the West, and elsewhere.

There appears no reason to assume the Department of Justice will attempt to override the U. S. District Court decision that the anti-trust laws had not been transgressed when the U. S. Steel proposed to acquire Consolidated Steel. In a similar case involving another agency of the government the Department of Justice made clear that it did not think it could successfully prosecute in the light of the Consolidated ruling.

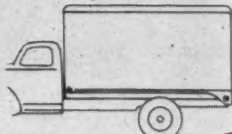
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2 BODY TYPES

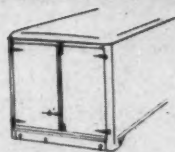


WHEEL HOUSING



STRAIGHT FRAME

2 ROOF OPTIONS

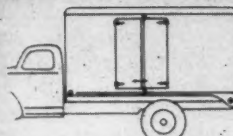


ENCLOSED



OPEN TOP

2 ROADSIDE PANELS

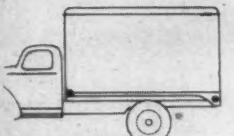


DOUBLE DOORS



SOLID PANEL

3 LENGTHS



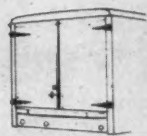
12 FOOT



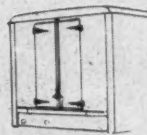
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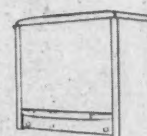
16 FOOT



FULL WIDTH DOUBLE DOORS

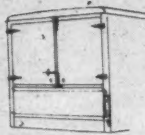


NARROW DOUBLE DOORS

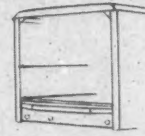


SOLID REAR

8 REAR END DESIGNS



TAILGATE WITH DOUBLE DOORS ABOVE



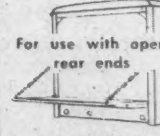
NO REAR DOORS



OUTSIDE TAILGATE

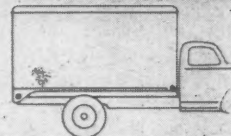


EXPRESS GATE



FLUSH TYPE TAILGATE

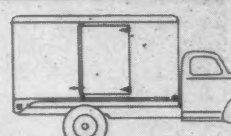
3 Curbside Panel Options



SOLID PANEL



DOUBLE DOORS



SINGLE DOOR

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PRODUCTION-

LINE PRICED!



FRUEHAUF TRUCK BODIES

West Must Fight To Get More Steel

(Continued from page 48)

opinion here is that the Attorney General has mainly indulged in hopeful conversation, based on sincere purposes, plus sincere effort to do or say nothing that may harm the political coloration during this election year.

It will startle you to learn that the Department of Justice, through its FBI, has been forced to the conclusion that it can do *nothing* about the grey or black markets in steel. It also will startle you to hear that the Senate Small Business Committee, during its steel hearings in California, received a plea from a steel user to do nothing about the grey market. This witness very candidly told the Committee the grey market was his real source of good business.

Inquiries by the Committee and the FBI elicited the information that many fabricators as well as exporters used a substantial part of their steel allocations to sell in the grey market. They made no secret of the fact that most of them are integral parts of the "daisy chains." This is a system apparently novel to this period. The Senate Small Business Committee surmises the system operates as a combination which fixes prices and restrains trade, and in effect is a violation of the law; but the method by which the system works actually is not illegal. In other words, formally, juridically, the grey market is lawful.

How the "Daisy Chain" Operates

There is nothing in the law which prevents the fabricator, or the exporter, or anyone else who legally has title to the steel, from selling it at any price he may fix. The combine is apparently so conducted that it is impossible to prove it is a combine. The FBI, thus far, has been unable to find any written evidence of transactions between the members of a presumed combination.

Let us assume that A is a fabricator, and is a member of some combination. He may, of course, sell direct to the user who is short of steel. But since it is good business to have a number of potential sales agencies, or outlets, the original owner of the allocation, in most instances, sells to B or C or to D, E, F, G, etc. They in turn sell to the final user.

B may be a dentist; or C may be a barber; and L may be a lawyer, and so on. The original grey market order may come from any of them. But since there is strength in the combination of a well-organized group, the system generally operates in such manner that A sells to B, B sells to C, C to D, etc., each getting a small "cut," which is added to the really substantial profit taken at first instance by

the fabricator or the exporter. Of course, all these small "cuts," plus the base price legitimately exacted by the mill, plus the substantial profit demanded by the fabricator who buys from the mill, finally come out of the pocket of the ultimate user, who often will pay almost any price to get steel.

Bear in mind, each transaction between the members of the combination, or "daisy chain," legally is a separate and unassociated deal. So far as the law is concerned A makes a deal with B, B makes a deal with C, and C with D, and so on, each deal complete and final *legally*, with no apparent connection between the members of the chain *legally*.

No Illegal Actions Evident in "Chains"

The written contracts between each pair are legal and legitimate. Yet, apparently, there is no doubt that the members of the chain work in close harmony. Undoubtedly, in some instances, they know what their regular "cut" may be, so that the price paid by the ultimate buyer is strictly within the over-all limits set up by some directing element of the chain. The members of the chain know it, the mills are undoubtedly aware of it, and the government knows it; but the whole system is so adroitly integrated, and so free from any evident illegal action that there is absolutely no way of stopping the business, which is admittedly immoral, bad for business, and actually a violation of the intent of the basic law of the land.

Every one in Washington who has anything to do with steel will tell you it is far scarcer today than it ever has been in the history of the industry. And so far as can be anticipated it is daily becoming scarcer. A member of the Senate Small Business Committee said that about the only place the average small user of steel can get a supply today is from the grey market or the black market, at exorbitant prices.

The people in the federal government are quite convinced, as the result of the many inquiries, hearings, and investigations, that the steel barons in the highest echelon, are not remotely involved in the grey market operations, and often try to aid in putting a limit to what is happening.

But the people in Government are also convinced that the same purity does not obtain among the lower echelons of the administrative, sales and other sections of some of the steel mills. They feel the grey market system just could not function

without inside help. But they have not been able to put the finger on any of them, at least so far as the report goes today.

What can be done about it? Most of official Washington thinks the only answer is government control over allocations, prices and distribution. Obviously, the controls over distribution would eliminate the intermediate dentists, lawyers, blacksmiths, barbers, and others who skim theirs in the operation of the daisy chain. But official Washington realizes that controls cannot be imposed now.

Congress will fight shy of controls because the country is opposed to them; at least, the business community is strongly opposed. Many of the consumer groups want controls; and this urgency may in the end swing Congress to voting controls, despite the opposition of the business and industrial groups which supply the funds for the campaigns, such as are imminent. Congress feels that money may pay for campaigns, but that consumers have the votes.

Washington has been told that the Pressed Steel Institute recently sent a questionnaire to its members to find out whether or not they wished controls to lick the grey market. Over 98 per cent of them voted with heat and urgency against controls of any kind. Mind you, this is the crowd that uses more steel than any other group in the United States.

Another survey made on the Pacific Slope, in a more limited and restricted manner, brought out the fact that the majority of steel users wanted to be left alone. They seemed to think that they are doing a grand business in shipping ingots and shapes and other steel products to Sweden and other parts of the world.

Rightly or wrongly, we get the impression here that most of the steel users out there are mostly engrossed in getting the ingots and shapes to ship somewhere north of Newfoundland, or somewhere south of Suez: at least anywhere except in the United States.

Light a Fire Under Western States Council

Also we get the impression that if your business people want any help from Washington in connection with any steel problem, and wish to support Ronald M. Ketcham, the new Los Angeles Chamber of Commerce representative, as well as Christy Thomas of the Seattle Chamber of Commerce, and Frank McKee, and Williamson of the California State Chamber of Commerce, and the grand old man of them all, W. D. B. Dodson, of the Portland Chamber of Commerce, you will have to put a bit of fire under your Western States Council, and specify someone here to lead the procession, and encourage whoever has the job, to dramatize the effort.

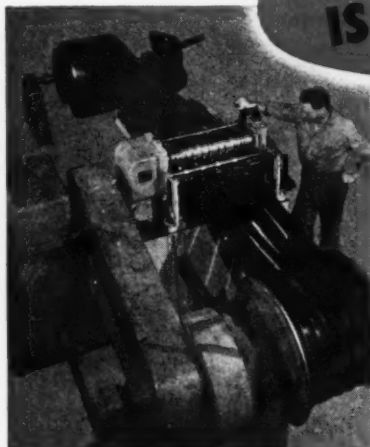


Hydraulic 12-ft. heavy duty shear handles sheets and plates up to $\frac{3}{4}$ inch.

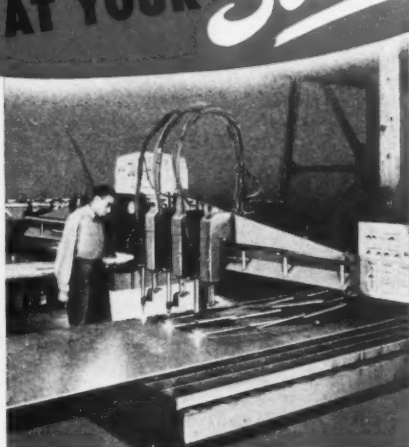


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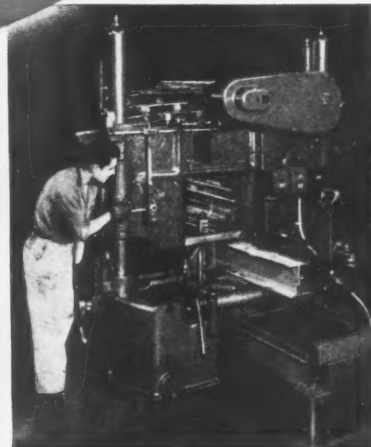
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WESTERNERS AT WORK...

California

Manufacturing

D. F. Axelson, retired after 40 years as v.p. in charge of manufacturing, Axelson Mfg. Co., Los Angeles. R. N. Pease, formerly v.p. and mgr. of St. Louis plant, upped to v.p. and asst. gen. mgr. at Los Angeles; Victor Mancuso, formerly works mgr., promoted to v.p. in charge of manufacturing. . . .

Henry P. Nelson of Washington, D. C., former head of WPB aircraft division, elected pres. of Menasco Mfg. Co., Burbank.

Henry M. Brundage, former Commissioner of Markets for New York City, and asst v.p. of Schenley Distillers, becomes v.p. in charge of sales for Weber Showcase & Fixture Co., Inc., of Los Angeles.

Huntley Castner named asst gen. sales mgr. and Hugh Griswold, director of packaging research on the West Coast, hqtrs. San Francisco, of Owens-Illinois Glass Co.

Philip F. Thayer, resigns from Rheem Mfg. Co. as v.p. and director to join executive staff of Sterling Electric Motors, Inc. . . .

Robert G. Engel, now associated with Progress Furniture Mfg. Co., Inc., as v.p. in charge of manufacturing, in Los Angeles. . . .

S. H. Egbert designated production mgr. for McCulloch Motors Corp., Los Angeles. . . .

L. R. Reed appointed mgr. of Burbank branch, Pacific Airmotive Corp. . . .

Leland D. Adams, Jr., elected pres. of C. G. Hendry Co., replacing C. G. Dilke, resigned. Dilke will continue to serve on board of directors and in advisory capacity for company.

Oil

Walter Brunn promoted to asst domestic sales mgr., and Marshall S. Pease made new mgr. of retail sales for Western division of Tide Water Associated Oil Company. . . .

Utilities

Arthur F. Bridge announced as new pres. and gen. mgr. of Southern Counties Gas Co. in Los Angeles, with Guy W. Wadsworth, v.p. and asst gen. mgr., and F. A. Hough, v.p.

Government

John Felton Turner, Oakland attorney, appointed to Gov. Earl Warren's new five-man California Aeronautics Commission.

Steel

C. S. Conrad declared gen. mgr. of sales for Columbia Steel Company, subsidiary of U. S. Steel Corporation, with W. B. Sawyer, Jr., asst gen. mgr. of sales administration; Eric Barnett, asst gen. mgr. of sales distribution; and C. L. Hamman, gen. sales staff mgr. . . .

R. H. Bell, formerly asst supt., now supt. of bolt and nut dept. of So. San Francisco plant of Bethlehem Pacific Coast Steel Corp., Bethlehem Steel Co. subsidiary. . . .

Transportation

Thomas J. Cokely, operating mgr. American President Lines, elected v.p. in charge of operations.

Gen. Tim J. Manning, pres. Key System Transit Lines, Oakland, named pres. of Los

Angeles Transit Lines, succeeding W. Ralph Fitzgerald, who will return to Chicago to become v.p. and gen. mgr. of parent organization, National City Lines. . . . Gen. Manning to be replaced in Oakland by Edwin C. Houghton, who is also pres. of Railway Equipment & Realty Co., Ltd. . . . F. W. Teasdel, asst to pres. of Key System, will fill newly created position of v.p. . . . William H. Gorman, Los Angeles, chief of State Public Utilities Commission, will take over v.p. of National City Lines in San Francisco.

Chemicals

H. C. Mathey elected asst v.p. of Liquid Carbonic Corp. Mr. Mathey also recently appointed gen. mgr. of corporation's Pacific operations, with hqtrs. in Los Angeles.

A. P. Pahl succeeds Walter D. Jones, retired, as technical director of W. P. Fuller & Co., So. San Francisco laboratories. Mr. Pahl formerly mgr. of Fuller factory in Los Angeles, later mgr. of So. San Francisco laboratories.



A. P. Pahl



Ray Sanders

Ray Sanders, whose appointment as genmgr. of Pacific Chemical Co., Los Angeles, was announced in Dec. W.I. Company is a division of American-Marietta Co.

Colorado

Frank M. Givin named gen. foreman of Timken Roller Bearing Co.'s new rock bit plant at Colorado Springs. William A. Fowler in charge of construction, installation of machinery and getting plant into production; William Matthews, office mgr.

Brig. Gen. Charles S. Shadle, retired, formerly commanding officer at Denver's Rocky Mountain Arsenal, named v.p. of Julius Hyman & Co., Denver industrial chemical producers who are tenants of a portion of arsenal.

Raub Snyder, formerly of Denver, appointed Zone Four administrator of War Assets Administration, which includes region nine, comprising Colorado, New Mexico and Wyoming.

Robert Rice, v.p. of Colorado and Southern R.R. at Denver, retired after 49 years' service with the company. He will continue as a director. Arthur J. Horton will succeed as v.p.

Irving Herts takes over as supt. of production planning and shipping departments of Colorado Fuel & Iron Co., upon retirement of Col. S. H. Potter. Mr. Herts made the following new appointments in dept.: H. A. Soren-

son, asst supt.; C. J. Vidmar, foreman of wire mill scheduling stockkeeping and shipping section; G. B. Henion, head stockkeeper and shipping foreman; H. E. Hanson, chief stockkeeper of billet and ingot yard and chief schedule clerk of rolling mills.

New Mexico

Robert R. Willard, former gen. counsel for the Bonneville Power Administration at Portland is new area counsel for the Atomic Energy Commission at Los Alamos, N. M. He will also act as asst gen. counsel for the entire commission.

Oregon

Harry B. Pence of Kansas City replaces H. G. Murphy, retired, as v.p. of John Deere Plow Co., Portland.

Newly established Phillipson Retort Mfg. Co. at Eugene, for the manufacture of products from sawmill wood waste, will have following officers: H. S. Phillipson, pres.; R. U. Bronson, Trio Lumber Co., v.p.; F. E. Siemens, sec.; E. J. Eberdt, Monroe Lumber Co., treas.; Al Clements, Clements Logging Co., chairman of the board.

Victor R. Williams named supt. of rolling mills at Oregon Steel Mills, Portland. Formerly with Columbia Steel at Pittsburg, Calif.

Cyrus T. Walker promoted to v.p. of Pope & Talbot, Inc., at Portland. Loran Stewart succeeds as asst v.p. and gen. mgr.

Utah

Dr. John K. Gustafson, Salt Lake City, named director of Division of Raw Materials of U. S. Atomic Energy Commission.

Carl S. Westerberg resigned from Bituminous Coal Research, Inc., and rejoined Utah Fuel Co., Salt Lake City, as technical asst to president.

George W. Wunder made supt. of Eureka properties of U. S. Smelting, Refining and Mining Co., of Eureka, Utah.

Washington

Irving C. Smith named asst gen. mgr. of Western division of Monsanto Chemical Co., at Seattle. Formerly manager-director of Laucks, Ltd., Vancouver, Canada, and also v.p. and director of Monsanto, Canada, Limited.

R. K. Hoover appointed gen. supt. of lumber division of Weyerhaeuser Timber Co., of Longview.

W. J. Mandley new consulting electrical engineer for Pacific Paperboard mills and plants at Longview.

Gilbert D. Moyle, gen. mgr. of Idaho Refining Co., at Pocatello, appointed v.p. and gen. mgr. of The Inland Empire Refiners, Inc., Spokane, Wash. Inland is a subsidiary of the Wasatch Oil Co., and serves Washington, Oregon, western Montana and western Idaho.

Dave Watson, former purchasing agent for the Longview Fibre Co., elected v.p. and mgr. of Lynch Lumber Co., Longview, a wholly owned subsidiary of Pacific Paperboard Co.

E. R. Fetterolf announced as manager of Tacoma Chamber of Commerce, replacing Thad Stevenson, who has gone into private business.

Robert L. Regan, division supt., promoted to factory general supt. of Boeing Aircraft Co., directing manufacturing in firm's Seattle fabrication, subassembly, final assembly and tool fabricating divisions.

Orville Latimer has been named superintendent of the paperboard mill at Longview, Wash., of Pacific Paperboard Company.

E. R. Hinton, upped from v.p. to pres. of Olympic Steel Works, Seattle, succeeding the late C. W. Kuchner. Ronald E. Kuchner, who succeeded his father as pres. of Olympic Foundry, named v.p. of Olympic Steel.

Wyoming

J. B. Hughes new gen. supt. of Union Pacific Coal Co., at Rock Springs. Mr. Hughes was formerly acting supt. at Hanna, and has been replaced there by Hodge Burress.

Associations Elect

O. F. Bridwell elected sec.-treas. of Colorado & New Mexico Coal Operators Ass'n to fill vacancy caused by death of Frank Sandstrom.

James W. Wade elected pres. Utah Mining Association. He is pres. and gen. mgr. of the Tintic Standard Mining Co. of Salt Lake City.

E. W. Daniels, pres. of Harbor Plywood Corp., Hoquiam, Wash., named to serve tenth consecutive term as chairman Douglas Fir Plywood Industry-Management Committee. The following men will assist on the committee: Norman O. Cruver, Herman E. Tenzler and Charles E. Devlin, all of Tacoma; Frost Snyder, Vancouver, Wash; Robert E. Seeley, Seattle; Arnold Koutonen, Olympia; Thomas B. Malarkey and B. V. Hancock, both of Portland.

Paul W. Learner elected pres. Northern California chapter of Scrap Iron Institute, replacing Marshall Shapiro.

Moe Michelson elected pres. of Pacific Northwest chapter of the Institute of Scrap Iron & Steel, Inc.; first v.p., Leo Bloch; 2nd v.p., Carl Sternoff; sec., David M. Sidell; treas., Harry Sidel.

The following exec. committee chosen by the California Apparel Creators: chairman, E. W. Stewart, Catalina, Inc.; v.-chairman, W. J. Freedman, Hollywood Rogue Sportswear; other members of the committee are: Dan Gertsman of Seymour Graff; David Isaacs of Adele, California; Tobias Kotzin, A-1 Manufacturing Co.; Frank McNeill; Joseph Pizer; Walter Weyman; and sec.-treas., A. A. Normandin.

W. P. Fuller Brawner, v.p. and treas., W. P. Fuller Co., elected pres. of San Francisco Chamber of Commerce. George C. Montgomery, v.p. Castle & Cooke, Ltd., 1st v.p.; George C. Tenney, pres. McGraw-Hill Co. of Calif., 2nd v.p.; Richard D. Brigham, v.p. Anglo Calif. National Bank, 3rd v.p.; Louis B. Lundborg, gen. mgr. of Chamber, reelected as 4th v.p.; Henry E. North, v.p. and Pacific Coast mgr., Metropolitan Life Ins. Co., treas.; Robert Di Giorgio, officer and director, Di Giorgio Fruit Corp., off't treas.; Marie A. Hogan, reelected sec.

Leonard A. Hobbs, Smoot-Holman Co., Inglewood, Calif., re-elected sec. of RLM Standards Institute.

George H. Rupp, Pueblo, Colo., manager, mining dept., Colorado Fuel & Iron Corp., and Paul L. Shields, Salt Lake City, v.p. U. S. Fuel, named members of National Coal Association's new Safety Committee.

(Continued on page 54)

FACTORIES

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Center YOUR MATERIAL HANDLING PROBLEMS...

The Answer is in this 60-Page Book

NO matter what your material handling problem, you can look to the big Colson catalog for the answer. From the heavy duty Colson "Lift Jack" System on page 2 right on to the Colson light general duty hand truck on page 55. Trucks for food industries, factories, hospitals, laundries, mercantile establishments, warehouses—all are illustrated and described.

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THE PROBLEM: TO HEAT WIRE BEYOND ITS COMBUSTION POINT WITHOUT BURNING IT UP.

THE SOLUTION: VERY SIMPLE, WITH GAS FUEL! READ BELOW:

California Wire Cloth Corp. uses a battery of three-base gas furnaces, each with a single bell, for annealing wire. ★ The retort is lowered over coils of wire as illustrated. An oil-seal prevents gas and heat from escaping. ★ De-oxidized gas, known as D-X, is pumped into the retort. Natural gas is fired into tubes, which circulate the heat. Thus, no direct flame strikes the wire or the D-X gas surrounding it: *high temperature without oxidation!* ★ Whatever your special heat problem, your gas company's engineers can help you solve it, for efficient production at practical cost.

THE PACIFIC COAST GAS ASSOCIATION

The West Prefers
GAS

QUICK • CLEAN • DEPENDABLE • FLEXIBLE • ECONOMICAL



WESTERNERS AT WORK

(Continued from page 53)

The Venetian Blind Institute of Southern California elects as president J. J. Entin, pres. Crown Venetian Blind Manufacturing Corp. and vice pres. of the Curtain and Drapery Club of Southern California.

Structural Engineers Ass'n of Northern California elect John A. Blume pres. Other new officers are Jesse Rosenwald, vice pres.; Henry J. Degenkolb, John E. Rinne, and A. W. Anderson, directors.

Oakland C. of C. re-elected James H. L'Hermiteau as pres., and picked the following new officers: vice presidents, Phil A. Hoyt, exec. v.p. of Oliver United Filters; Orton E. Lucas, general mgr. of Hale Bros.; and William H. Park, general mgr. PG&E East Bay div. New treas. is Clifford D. Allen of Western Paper Box Co., and J. R. Knowland, Jr. and Ingraham Read will serve on the Exec. Committee.

R. L. Irvine, v.p. and gen. mgr. of Utah Lumber Co., elected pres. of the Utah Manufacturers Ass'n, succeeding Charles T. S. Parsons. Other officers named were Herbert J. Barnes, Kaysville, pres., Kaysville Canning Co., 1st v.p.; Albert E. Becker, Ogden, v.p., Becker Products Co., 2nd v.p.; H. M. Chamberlain, exec. v.p., Walker Bank & Trust Co., treas.; and W. R. White, Ogden, pres., W. R. White Pipe Co., sec. Mr. Chamberlain was re-elected.

William E. Geer, gen. mgr. Midwest Steel & Iron Co., is new pres. of Manufacturers Ass'n of Colorado, George W. Liljestrom of Gates Rubber Co., v.p.; John H. Jacobs of O. P. Baur Confectionery Co., treas.; L. H. Kittell, sec.-mgr.

National Coffee Assn. re-elected George V. Robbins of New York, California Packing Corp. official, pres. for third consecutive term, at convention in Yosemite National Park. Other Californians elected were E. A. Johnson, San Francisco, v.p.; J. A. de Armond, J. A. Folger Co., San Francisco, and Wm. V. Lynch, W. R. Grace & Co., San Francisco, directors to serve till 1950.

Kenneth R. MacDonald elected pres. of San Francisco Bay Area Chapter of National Aeronautics Association.

Henry Dreyfus of Pasadena, elected pres. of Society of Industrial Engineers at annual meeting in New York. C. Hunt Lewis, also of Pasadena, named to board of directors.

Lou Colen, Nathan S. Colen & Son, Inc., Los Angeles, elected v.p. of So. Calif. chapter of Institute of Scrap Iron & Steel, Inc., to fill unexpired term of E. S. Grinstein, who resigned.

WAA sales organization for San Francisco zone announced as follows: Zone administrator, Robert B. Bradford; deputy zone administrator for real property, Donn Biggs; advisory council, William M. Hale, exec. v.p. American Trust Co., San Francisco; Colbert Coldwell, pres., Coldwell, Banker and Co., San Francisco; John F. Forbes, financial consultant, San Francisco; Stephen K. Bechtel, director, American Trust Co., San Francisco.

The following Westerners were elected chapter president of The American Marketing Association at annual fall elections: Pacific Northwest chapter, Robert C. Story, Seattle Chamber of Commerce; San Francisco chapter, Dean Charles J. Dirksen, Univ. of Santa Clara; Southern Calif. chapter, Bradford Corbin, mgr. of Market Research, The Coleman Co., Inc.

Clark Galloway designated manager of California State Chamber of Commerce's Central Coast Council.

William M. Allen, president of Boeing Aircraft Co., Seattle, elected chairman of Western Region Aircraft Manufacturers Council of Aircraft Industries Assn., succeeding T. Claude Ryan, pres. of Ryan Aeronautical Co., San Diego. Richard W. Millar, of Northrop Aircraft, new vice-chairman of the council.

REGIONAL REVIEWS

TEHACHEPI TO TIJUANA

Power Facilities Straining To Keep Up With Demand

**New industries at Basic Magnesium plant over-tax Hoover Dam;
Second steam unit narrowly averts a crisis in Los Angeles**

LOS ANGELES—Although some Congressmen seem unable to grasp the enormous scope of the West's wartime expansion, hard facts are piling up to show that even the vast projects of the thirties have become inadequate to meet the magnified demands of post-war industrial growth.

This year, some of these demands are reaching the showdown point. For instance, even the colossal torrent of the Colorado River, falling through the turbines of Hoover Dam, is far from enough to nurture the crop of young industries springing up on the site of the fallen magnesium giant at Basic, and at the same time to supply the power already earmarked for other areas of the Southwest.

An embarrassing situation has arisen through ending of the wartime operating agreement under which a giant bank of power units at Hoover Dam, known as N-7, originally was installed — which leaves the government without water to run this machinery.

Under the Colorado River Compact of 1928, each allottee was to install and operate its own generator. The post-war shortage of electrical energy on the Pacific Coast, however, makes the two major power companies involved quite reluctant to assume permanently the load of the Basic project, although Southern California Edison has continued for the time being to furnish power, so as not to leave stranded the five companies now operating at Basic.

These companies are Nevada Clay Products Company; Stauffer Chemical, making chlorine from mineral salts produced at another wartime project at Amboy; Western Electro-Chemical, making potassium products; Ammoco Chemical, producing synthetic detergent cleansers; and U. S. Vanadium, turning out steel alloy metals from northern Nevada ores.

It is a striking fact that these five firms, though occupying only 30 per cent of the

space at the Basic plant, are consuming 85 per cent of the power load utilized by the original light-metal project.

An arrangement just negotiated by War Assets Administration with the Edison Company and the Los Angeles Bureau of Power and Light will assure four more years of operation for the industries at Basic, but the major problem remains. The original prospect of exploiting the desert's enormous mineral resources with low-cost hydro power is no less alive, but it has become temporarily eclipsed by new demands from the fast-growing industries of the Pacific Coast.

Even the meticulous long-range calculations of utility company engineers, who at one time were assailed by some critics as visionary when they predicted great Western needs for fuels and power, have fallen far short of actuality. No one foresaw a war bubble that wouldn't burst, nor a tidal wave of "transient" population that wouldn't recede. The very presence of these newcomers has almost painfully enlarged residential requirements for fuel and lighting.

Texas Gas to the Rescue

Just when the oil industry was most anxious to pump its natural gas back into the ground to restore war-depleted pressures and lift out more oil, residential and industrial demands for gas have hit a level actually above the local supply. It was the best of news, therefore, when, with a whoosh and a roar, gas from Texas rushed into Southland mains via the "Biggest Inch" pipeline, just completed.

Southern California Gas Company officials said it was just in time—that this area already is consuming 800,000,000 cubic feet of natural gas daily at minimum, well above local production capacity. Furthermore, every time the thermometer drops one degree in this sunny clime, this gas load climbs another 15,000,000 cubic feet.

The Texas line's output will jump from 175,000,000 to 305,000,000 cubic feet a day when an additional 250-mile branch from Eunice, New Mexico, to Dumas, Texas, is put into service some time next year. Northern California industry meanwhile is sharing in the new bonanza, to the tune of 50,000,000 cubic feet daily sent to the Bay area.

Harbor Plant Adds Unit

The populous metropolitan area around Los Angeles is clamoring for electricity on a scale beyond hydro sources to supply, creating new drain upon oil stocks. Just in advance of this winter's heavy peak load, the Bureau of Power and Light threw into operation a new 87,250-h.p. generating unit at its Harbor steam plant.

It is the second time a near-crisis was averted by adding to the Harbor plant. In June, 1943, a twin to the new unit was put into service just in time to avert a serious shortage of power for war production.

Completion by 1949 of three more steam units will make the Harbor plant the second largest steam generating station west of Chicago, with a total capacity about three-fourths as large as is available to Los Angeles from Hoover Dam. Fortunately, in view of the tight national situation in fuel oil, the steam plants will be able to use surplus Texas gas during warm months, saving nearly a million barrels of oil annually.

The municipal system's peak load is expected this year to reach 680,000 kw., well above both the pre-war high of 431,000 and the war peak of 654,000 kw.

Southern California Edison, serving a large territory surrounding metropolitan Los Angeles, has been obliged to expand sharply to meet the requirements of increased population. Already it has spent \$35,000,000 this year on a program which

(Continued on page 56)

Power Facilities Straining

(Continued from page 55)

between now and the end of 1949 calls for an additional \$125,000,000 in new construction.

A new steam generating station at Redondo Beach is being built on the site of an early-day plant demolished 20 years ago. A new hydroelectric plant at Big Creek, major source of Edison power, is scheduled, plus 34 additional switching stations scattered over its vast network to handle the expanded needs of innumerable growing communities.

San Diego has just begun to recharge its depleted reservoirs with Colorado River water. Completion of the 71-mile aqueduct started during the war under Navy auspices will bring 50,000,000 gallons daily to the southern port's reservoirs, now near the danger point as result of recent dry spells.

Fruit Exchange

Proving that Western states, in a pinch, can make a living by taking in one an-

other's washing, Los Angeles has become No. 1 eating center for Washington apples. Evan R. Peters, a San Francisco advertising man, revealed this discovery, pointing out that advertising concentrated in the Southland city has caused it to nose out New York and Chicago, formerly the two leading markets for the northern state's fruit. Some 2,000 cars of Washington apples have been sold in Los Angeles in recent seasons and this season's total will be nearer 2,500 cars—not a bad exchange for the large amount of southern California citrus fruits consumed in the Evergreen State.

The "golden crop" of citrus fruits rolling eastward out of southern California has set a new high for volume for the third consecutive year, but the bumper crop returned lower prices to local growers. Carryover of canned Texas and Florida juice, plus higher labor and freight costs, cut into revenues, although lemon growers benefited from summer hot spells which caused perspiring Easterners to consume prodigious quantities of lemonade.

Seven hundred vegetable and melon growers of the Southwest met here and viewed with some apprehension the market for their product, which represents one-third of the nation's carload-lot vegetable shipments. Among the menaces they saw on the horizon were (1) prohibitive rises in distribution costs and (2) the growing tendency of housewives to open a can, instead of preparing fresh vegetables for the table—thus robbing their families, perhaps, of precious vitamins, while doing the growers a bit of no good.

Aircraft Research

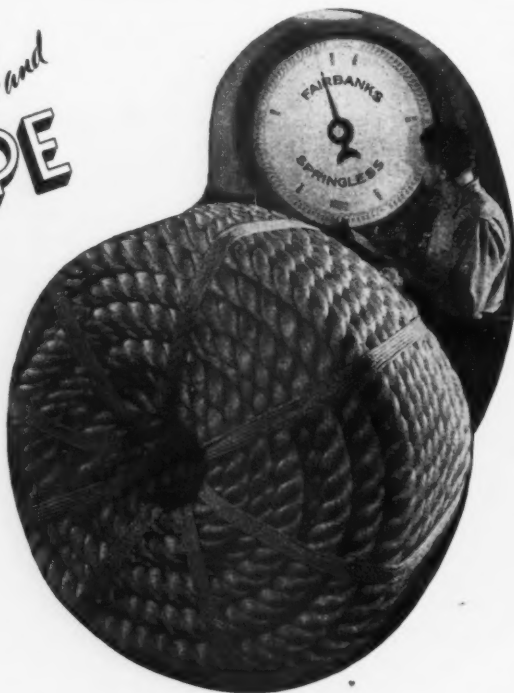
Research on military weapons continues briskly despite the uncertainties surrounding the aircraft industry's outlook. North American Aviation has successfully tested the AAF's first swept-back fighter, the jet-propelled XP-86, which tops 600 mph. in speed and has a range of more than 1,000 miles, with ceiling of 40,000 feet. Northrop test-flew its Flying Wing YB-49 eight-jet bomber and found the 100-ton giant surprisingly nimble, its 32,000-hp. engines lifting it so rapidly that pilots sometimes have found it necessary to throttle back on the take-off climb until the landing gear can be retracted to the proper full-speed position. Northrop also has received a \$1,500,000 order for landing flaps for Boeing's B-50 bombers.

Los Angeles area now becomes an independent Army Ordnance District in its own right, with 12 facilities now engaged on 35 contracts totalling \$16,000,000. Col. W. S. Broberg, commanding officer, says 96 per cent of the district's work is basic research on new ordnance weapons, including jet and rocket propulsion, fuels, missile control, and acceleration of cyclic rates of fire of weapons.

(Continued on page 58)

MEN and ROPE

Jim Burns, veteran warehouse man, checks the weight on a coil of marine cordage in the Tubbs Mills.



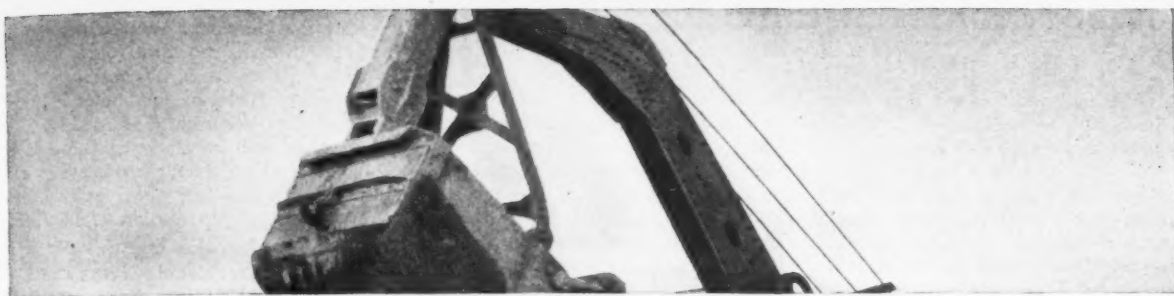
Even at its final stage of production—in the shipping room—skilled rope experts carefully check each coil of Tubbs rope to assure uniform quality.

This Men and Rope combination go hand in hand to assure a product that year in and year out—for nearly a century of rope making—have won for the name Tubbs a place of leadership for rope that gives extra wear and dependability.

When you specify rope to your suppliers play safe—and smart. Specify Tubbs Extra Superior Manila—the rope that the West recognizes as the outstanding rope value.



TUBBS CORDAGE COMPANY
SAN FRANCISCO • LOS ANGELES • CHICAGO • PORTLAND • SEATTLE • NEW YORK



WHITE has made an important addition TO THE CONSTRUCTION PICTURE!



Even greater horsepower in New Super Power WB Models!

After ten years and millions of miles of rugged, low-cost operation, White Super Power engines now add even greater performance in the new WB Models. Continued research has given White Super Power higher horsepower per cubic inch of

displacement than ever before! Other outstanding engine features include sodium-cooled stellite-faced valves, dual carburetion, scientifically metered intake manifold for uniform fuel distribution, plus many others. *White Super Power's superior ability to do an outstanding job at below average cost is proved time after time—year after year.*



THE WHITE MOTOR COMPANY • CLEVELAND
Pacific Coast Branches and Dealers in all the important cities

FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS

Power Facilities Straining

(Continued from page 56)

Aerojet will participate in enlargement of the Navy's air missile test facilities at Point Mugu, near the Port Hueneme base. In conjunction with General Electric, Aerojet recently demonstrated an innovation which will greatly reduce hazards to research workers in this dangerous field. It is a television camera placed inside the heavily bulwarked concrete test pits, which gives a close-up picture of the rocket as it is fired on the test rack. No human being need be near the tremendous flare that

bursts from the rocket as it roars into activity, yet performance of the projectile's charge can be studied perhaps even better than by actual eyewitness observation.

Ryan has just added another million dollars' worth of guided missile research work to its already substantial commitments in AAF development projects. The 1948 model of the Navion, four-place passenger plane taken over by Ryan from North American, has made its debut with a fanfare much like those accompanying

announcement of a new motor car model—featuring "limousine" appearance, enamel finish over-all, choice of four colors and trims, quieter cabin, no-draft ventilation, additional fuel tank, and reserve booster pump. Priced currently \$8,750, f.a.f. San Diego, it will be marketed through distributors who will enjoy a somewhat wider profit margin than previously. Outlets have been set up also in eight foreign countries.

Giant Hobbing Press

Western molders now have access to the largest hobbing press west of Chicago, through installation of a 3,000-ton hydraulic unit at Reingold-Geiger Plastics' Los Angeles plant. It will be used not only in that firm's own work, but also in custom hobbing for local plastic and rubber molders, and in hobbing steel cavities for die-cast establishments.

The immense press, one of the three or four largest in America, can press a 30-sq. in. cavity into a piece of steel "as easily as a man can press his finger into a piece of butter." One to a hundred exactly identical cavities can be turned out by a single hob, die-making being necessary only in production of the hobs. The polished surface of the hobbing steel retains its mirror-like finish in the process, becoming the interior surface of a highly polished cavity.

California glamour—and climate—are being merchandised ever more extensively. Buyers for Brait's, leading Philadelphia retail store, arriving West for the fall market events, sent back 6,000 postcards with southern California scenes to the store's customers. Each card describes California merchandise soon to be found on Brait's counters as result of purchases in the West.

Willys-Overland has re-opened its Maywood assembly plant after a seven-year wartime lapse, turning out the first civilian jeeps produced on the Pacific Coast. Re-conversion of the plant's wartime aircraft subassembly production lines is only partially finished but when completed will mean employment of some 700 persons, turning out 100 units per eight-hour shift.

A group of local industrialists recently swapped accounts of their experiences as suppliers of automotive parts for Ford, with whom some 88 contracts so far have been signed by California manufacturers. L. C. Disser, head Ford purchaser, reported that the buying program has made only moderate progress so far, mainly because of (1) unfamiliarity among most Western manufacturers with mass production methods, (2) shortages of materials, and (3) recent changes in Ford, Mercury, and Lincoln models.

Some veteran subcontractors for Ford reassured newcomers out of their own experience on such questions as these:

(1) What happens if you tool up and then Ford changes its specifications before you actually receive an order? ("Ford told me to go ahead and re-tool . . . they

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GREATER SAFETY



ECONOMY



DURABILITY

with INLAND 4 WAY

FLOOR PLATE

Rich Steel Company can ship promptly, out of stock, steel flooring that will do a good job for you. It wears well and looks well. It is easy to install because the pattern is the same in all directions. Once installed it is easy to sweep and keep clean and liquid drains off freely. Above all, its greatest advantage is its safety. It provides perfect traction for wheel or foot, thereby eliminating costly accidents and loss of time. • Inland 4 Way Floor Plate is ideal for catwalks, stair-treads, hatchways, truck beds and other industrial uses requiring steel flooring.

Write or phone today for estimates and suggestions. Our complete shearing and burning facilities are at your service.

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SERVICE

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gave me enough steady business so I had no trouble amortizing costs of my tooling," reported U. S. Spring and Bumper's John B. Rauhen.)

(2) How soon are Ford bills paid? (Invoices no longer have to clear through Dearborn, but are paid promptly by the local branch receiving shipments.)

(3) What about delays getting parts checked? (Resident inspectors now approve parts locally, instead of sending them to Dearborn for inspection.)

(4) How about tolerances? (Ford insists on strict adherence to tolerances specified, but when deviations occur, goes back to the source of the specifications to check the deviations, thus safeguarding suppliers against arbitrary rejection. J. W. Sheehan, of Arcturus Mfg., reported he had tools to make a particular part in one piece, but specifications called for a two-piece unit. He outlined the suggested change and within 24 hours got Ford approval.)

(5) What about profits? (Ford wants to see its suppliers stay in business so there will be no interruption in supply of parts . . . and because it can sell more cars in a district where industries are prosperous and payrolls are good.)

New Potash Research Lab

American Potash & Chemical Corporation have completed a \$300,000 laboratory at their Searles Lake plant at Trona, on the Mojave Desert. The laboratory has a twofold purpose, to find new values and to improve processing methods. Its staff, under W. A. Gale, director of research, has five sub-departments: lake division, product development division, plant development division, new process division, research service division.

The new research addition covers 16,800 square feet and has especially designed air conditioning. In addition to nine advanced-type laboratories, it contains a spectrographic laboratory, instrument room, photographic developing room, large research library, conference room, offices, and other facilities.

An outstanding feature is the two-story high pilot plant section equipped with galleries and overhead crane. Small-scale models of equipment used in the plant will be set up and operated in the pilot plant for practical tests of new products and new methods.

Not far from the laboratory, a new \$4,500,000 carbonation plant is under construction. This plant, to be completed in 1948, will greatly increase the output of soda ash and borax and also may be used for the production of other products. In addition, the company is constructing a major expansion of its steam and electric power generating facilities at Trona, and is erecting an office building in Los Angeles.



Don't Let Handling Problems Get You Down!

Manufacturers who are striving to improve their production performance are giving material handling a lot of attention these days. They know that modern, practical handling methods are paying dividends in greater production, safety, and better employee relations. There are always many problems connected with the design and application of continuous flow handling systems, and these are often quite difficult to solve. Such problems are a headache to busy plant engineers already involved with other production details—but these same problems are the everyday work of Mathews Engineers. The Mathews people are specialists in applying *continuous flow handling methods*, and have at their command the facilities of three modern plants and the experience of nearly half a century of conveyer work in light and heavy industry. So, don't let handling problems get you down—give them to Mathews Engineers and realize the advantages that are in a conveyer service which is complete from preliminary engineering to erection in the field.



MATHEWS CONVEYER CO. WEST COAST
SAN CARLOS, CALIFORNIA

MATHEWS CONVEYER COMPANY
ELLWOOD CITY, PENNSYLVANIA
MATHEWS CONVEYER COMPANY, LTD.
PORT HOPE, ONTARIO

Engineering Offices or Sales Agencies in Principal American and Canadian Cities

REGIONAL REVIEWS

SIERRAS TO THE SEA

Sacramento Votes Funds For A Deep Water Port

Canning industry gets safely "over the hump" for 1947;

Bay Area business activity jumps up from September

SAN FRANCISCO—Now comes Sacramento into the picture as a deep-water port. At the last election Sacramento and Yolo counties voted a \$3,750,000 port facility bond issue, to build a grain elevator, docks, warehouses and a belt railroad.

To back this up, Sacramento hopes that \$12,000,000 can be allotted by Congress in the next rivers and harbors bill to dig a 20-mile, 30-foot channel between Sacramento and the lower reaches of the Sacramento River which empties into San Francisco Bay. The Sacramento has been navigated by light draught vessels since gold rush days, but this will enable deep draught vessels to use a turning basin and entirely new dock facilities, while a lock will lift the smaller ships.

Already a big agricultural center, Sacramento will also have within a 100-mile radius 1,000,000 new acres of irrigated land with the completion of the Central Valley Project.

Over the Hump

The fruit and vegetable canning industry, probably the largest single industrial group north of the Tehachapis, is safely "over the hump" as far as its 1947 operations are concerned, because nearly 75 per cent of its output was already sold by October 1. It is so sensitive to climatic and general business conditions that many canners early in the season were fearful of signing up too much tonnage, lest they be unable to sell all their output profitably; past history is full of disasters.

While the margin of profit is no longer as good as in the war years, and the big investments made in mechanization of plants in wartime pose the danger of excess capacity, nevertheless the hazards of 1947 are over. Of course, 1948 may be a different story.

Here are the sales reports for 48 companies accounting for most of the total output, as of November 1:

Item	Pct. of pack sold
Apricots	68.12
Cling peaches	83.67
Bartlett pears	70.15
Fruit cocktail	89.00
Asparagus	94.49
Spinach	71.53
Tomato juice	28.61
Total	72.29

One important step forward that the canning industry has taken is to embark on a four-year advertising and merchandising campaign on cling peaches, the backbone item for California. For many years peaches have been up on the crest of the waves or down in the trough, in accordance with the volume packed and the marketing situation, but canners and growers finally joined together a year ago in financing and planning a long-range campaign to put peaches on a steady keel.

About \$1,000,000 a year has become available through an assessment of \$1 a ton each on growers and canners, which figures out to be about 5c a case of 24 No. 2½ cans, or .002c a can at present prices. Although advertising men consider a minimum of five years essential before reliable indications of results become available,

some encouraging straws in the wind already have been noted.

For example, the industry worked with General Mills, Kraft Foods, Carnation Company and National Biscuit Company on cooperative advertising and merchandising work in related-item promotions last year, and in each case it was found that a retailer fully tying in could usually more than double his turnover of the related items. Also, a large retail operator in Chicago reported last March, three weeks after the first full-color newspaper advertisement ever run by California's cling peach industry, that his sales in those three weeks had doubled the sales of the preceding nine weeks. Some other important cooperative campaigns are in sight on peaches for 1948.

Business Activity Up

October business activity reports for San Francisco do not show any seasonal tailing off, in fact there was a sharp upward turn from September. Financial transactions established an all-time monthly high, and the number of building permits was the highest in 20 years. The

(Continued on page 62)



• Four of the speakers at Berkeley's marketing and distribution clinic, l. to. r., Carlton Green, regional economist for U. S. Dept. of Commerce; E. A. Bonfield, vice pres., Ryder & Ingram, Ltd.; Tom Nielson, pres. Berkeley Steel Construction Co. and chairman of C. of C. industrial committee; George C. McNutt, advertising executive and pres. of NCIAA.

Chamber of Commerce business index was 11.5 per cent above October of 1946, and the index average for 10 months was up 6.3 per cent above 1946.

New industrial projects for the Bay region for October numbered 20, with outlays of \$3,717,000; industrial expansions 21 with outlays of \$4,834,850. Manufacturing employment, however, in the San Francisco-Oakland industrial area for October was down 600 from October 1946, and living costs in San Francisco rose abruptly from 159.3 on June 15 to 165.7 on September 15.

Lost Cause

Although the U. S. Department of Justice failed to establish its case before a district court in Delaware that purchase by Columbia Steel of Consolidated Steel Corporation of Los Angeles would be in violation of the anti-trust laws, Columbia and Consolidated are marking time until it becomes certain whether the government will appeal. *Western Industry's* Washington news letter in this issue indicates the attorney general considers it a lost cause.

It was a favorite wartime pastime to forecast that the shipbuilding industry on the Pacific Coast would disappear postwar. To be sure it has been shrinking, but the fact remains that the only passenger vessels of their size being built in the country in 1947 were the President Cleveland and its sister ship, the President Wilson, under construction at Bethlehem-Alameda Shipyard, Inc. The Cleveland was delivered the middle of December, while the Wilson is to be finished this spring. They are 23,507-ton trans-Pacific luxury liners, the largest liners ever built on the Pacific Coast.

Berkeley's Industrial Meet

Berkeley's status as one of the foremost industrial cities on the Pacific Coast, with 212 firms having an annual production of \$90,000,000 and a payroll of 7,500, was set forth at its first industrial exposition held in December. Exhibited were 72 items ranging from penicillin to peanut oil, and including adding machines, scaffolds, steel, smoking pipes and candy. Eugene E. Jurs is president of the Berkeley Manufacturers Association.

More than a score of Berkeley manufacturers turned out the previous month for a marketing and distribution clinic sponsored by the Berkeley Chamber of Commerce in cooperation with the Northern California Industrial Advertisers Association. Discussions ranged from market determination procedures to methods of financing distribution.

Bob Elliott Leaves "News"

The appointment of Robert C. Elliott, industrial editor of the San Francisco News, as administrative assistant to Henry Kaiser and to have charge of Kaiser's New York office, closes one chapter in a highly interesting study in industrial publicity by

a newspaper. It proved that industrial news can be just as attractive a feature as the ephemeral things for which the fourth estate gets so much criticism.

At the outset of the war period the News detailed "Bob" Elliott, a reporter of long experience in various cities, to establish a short daily feature about industry, which was then beginning to blossom rapidly. He had to dig up information unaided and with no precedent set elsewhere.

His column developed as a combination of individual "success stories," first-hand reports on industrial developments ignored by other newspapers and interviews with top-flight industrialists on timely topics. It included expeditions to points as far

away as Paris, a jaunt by air with the garment manufacturers from California who put on a style show that made the (one-time) world's style capital envious. His work did much to help the general public understand industry, and also to give industry a much kinder feeling toward newspapers. Where other newspapers failed to realize that the industrial growth of the West was an event of first magnitude, the News, through Bob Elliott, has watched the "industry beat" as faithfully as the "police beat," a policy that is generally far, far beyond the horizon of the vast majority of m.e.'s (managing editors).

(Continued on page 62)



PACIFIC

THERE IS A PACIFIC PUMP TO MEET EVERY INDUSTRIAL REQUIREMENT

Month in and month out, industrial plants depend upon reliable pumping equipment to continually do the job for which they were designed and engineered. For more than forty years Pacific Pumping Company have been manufacturing pumps that are sturdy, reliable and economical to operate.

Throughout every plant the use of pumps is very widespread. Our engineering staff are specialists in designing pumps to meet every service. Today pumps bearing the trademark of Pacific Pumping Company have a long record of satisfactory service. Our engineers will be glad to give you the benefit of the many years which our company has had in the pumping industry.

WRITE FOR FREE PUMPING MANUAL

Telephone, write or wire the office nearest you.

PACIFIC

PACIFIC PUMPING COMPANY
Manufacturers and Distributors of Pumps for Every Service
SEATTLE · PORTLAND · OAKLAND · LOS ANGELES

Sacramento Votes A Deep Water Port

(Continued from page 61)

Industrialists, business men generally, and successful farmers may not know how good prospects they or their firms are for owning small planes for business use, but it won't be long until they find out, according to the plans for selling Stinson planes explained at a regional dealers' meeting in Oakland early in December. Similar meetings were held at Portland and Los Angeles and six other points elsewhere in the country.

The idea is to teach them to fly solo for no charge, no attempt to sell, no obligation whatsoever. The dealer makes this offer to a hand-picked list of prospects. If a large proportion of them don't go for a \$6,000 four-place plane as part of their business equipment, once they have learned how easy and simple flying is, then Stinson has made a very bad guess.

Merchandising personal planes heretofore seems to have been confined to work-

ing on the people who show up at airports and flying schools, or trying to put the bite on GIs who won't have \$6,000 for a long time to come. Stinson people already have found that 55 per cent of their planes are bought by business people, 10 per cent by farmers, and 35 per cent by airport operators. They say that on the average it will take 10 hours to teach a man to solo, which is less time than it takes to teach a middle-aged man how to drive an automobile.

They urge that purchasers do not fly recklessly, do not fly at night, nor in bad weather, because here is the cause of 80 per cent of the fatalities. If they obey these rules, statistics show they should be able to fly 400 hours a year for 640 years without injury.

Stinson is a division of Consolidated-Vultee, so its merchandising plans originate to a considerable extent in San Diego, although factory and division headquarters are at Wayne, Michigan. Among the speakers at their coast dealers' meetings were William H. Klenke, Jr., Stinson sales manager; Bob Straughan, advertising and sales promotion manager; and Carl Havens (from San Diego), assistant to the vice-president of sales of Consolidated-Vultee.

Reported prospective sale of Rosenberg Bros. & Co., largest dried fruit packing firm in the world, to Consolidated Grocers of Chicago (Northern California Regional Review, Nov. 1947), is now announced as a sale for approximately \$18,000,000 to the Cummings Corporation of San Francisco, whose president, Nathan Cummings, is also president of Consolidated.

The sale includes the Rosenberg organization with its 15 packing houses and rice mills in California and Oregon, and also the Rosenberg subsidiaries, Herman C. Fisher Company, Northern California Warehouse Company, California Bean Company, Atlas Mercantile Co., Drager Fruit Company, American Seedless Raisin Company, Not-A-Seed Sales Company, Ensign Packing Co., R. Fair, Inc., Cured Fruit Association of California.

Arthur C. Oppenheimer, Rosenberg president and general manager, remains as general manager and chairman of the board, while Nathan Cummings assumes the presidency. Other officers of the Cummings Corporation are Anderson Owen, vice-president, and Samuel Stevens, secretary-treasurer. Rosenberg Bros. was founded in 1893. Its annual tonnage of dried fruits runs between 500,000 and 600,000 tons. The company handles edible tree nuts and beans and also packs rice.

By just establishing a 48-hour deadline for unloading all cars, whether domestic or export, despite the fact that free time allowance on export cars runs as high as five days in some categories, the San Francisco Port of Embarkation has entirely eliminated demurrage since Aug. 1947. No special methods or devices were initiated, the army men merely met General Neal H. McKay's deadline.



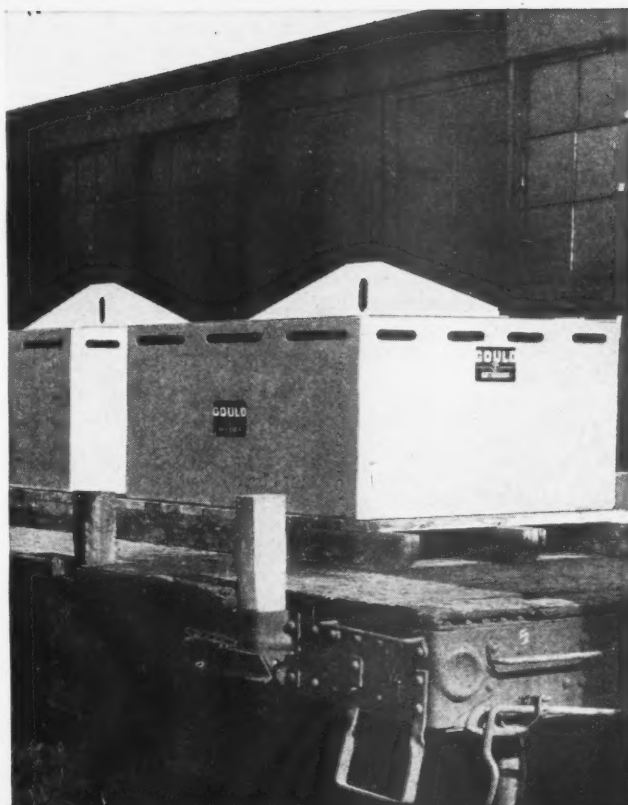
**call California for
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◀ Write for complete new catalog.

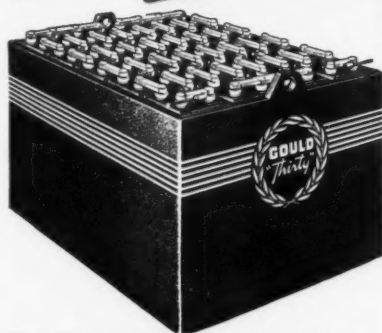
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GOULD PLUS PHILCO EQUALS BETTER DELIVERIES

Pictured at right—Six tons of dependable, stop-and-go power for the largest ram trucks ever built.



**Another way you profit by
the GOULD-PHILCO merger***



Write for Catalog 100 on Gould Batteries for Industrial Trucks.

Two great factories—one at Depew, N. Y. and the other at Trenton, N. J.—mean that Gould can better protect you on deliveries, regardless of fire, material shortages or shut-downs.

Through the combined "know-how" of the two factories, you benefit with the most advanced plant and engineering developments.

The Gould-Philco merger means better deliveries, better batteries—and better service.

No wonder Gould is more than ever the Choice of Engineers.

*The Storage Battery Division of Philco Corporation was merged with the Gould Storage Battery Corporation on June 28, 1947. The consolidated organizations are operating under the name of Gould.

GOULD



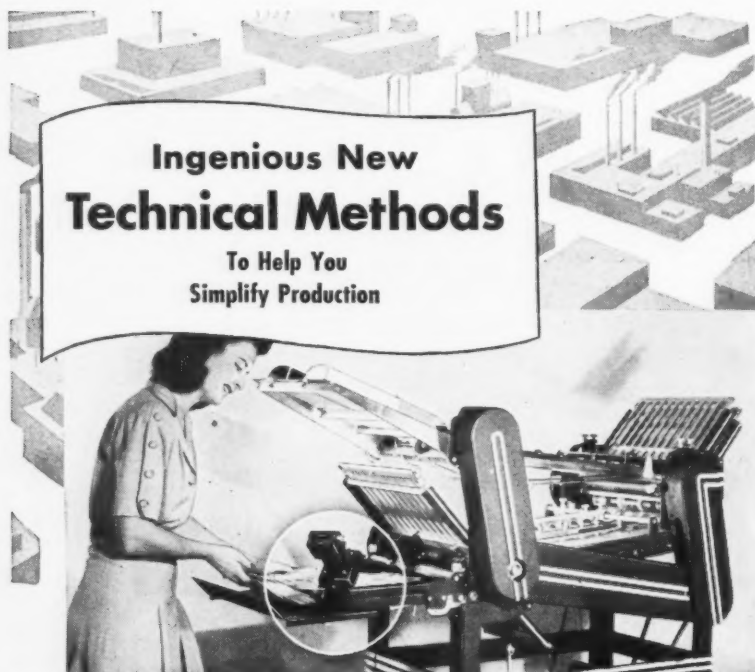
Gould Storage Battery Corporation
Including the Philco Corporation, Storage Battery Division
Depew, New York Trenton, New Jersey
Sales and service representatives
in thirty-one principal cities

BATTERIES

The President Cleveland Sails

THE \$19,000,000 spent on the President Cleveland, the new luxury liner just completed at the Bethlehem-Alameda Shipyard, sounds like a lot of money, and in fact the ship is the largest passenger vessel ever constructed on the Pacific Coast. But the entire shipbuilding subsidy is just a drop in the bucket compared to what the government pays out each year to support agriculture, the Reconstruction Finance Corporation and the postoffice department.

Agriculture has received an average of \$800,000,000 a year for the last 10 years in government support, RFC \$605,000,000 and the postoffice \$260,000,000. For shipbuilding only \$30,000,000 annually has been spent. To keep the shipbuilding industry alive, about \$200,000,000 should be appropriated each year, in the opinion of W. M. Loughton, Pacific Coast district manager for Bethlehem Shipbuilding Corporation, expressed to newspaper, radio, and magazine representatives on a tryout trip in December.



Instantaneous Production Control With Improved Electric Counter

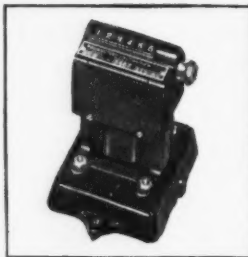
Accurate, up-to-the-minute counting of the production on this Davidson Folding Machine is done with the WIZARD Electric Counter.

New opportunities for more efficient production and elimination of over-run waste are created by WIZARD Electric Counters. These electrically-operated devices count any object or motion that will operate a switch, relay or photo-electric unit. Objects can be counted photo-electrically without physical contact and without risk to fragile or freshly-painted objects.

The Counters can be installed at any distance from the switch or photo-electric unit where the count originates. Or, they can be mounted on panels in the Production Department and arranged so that a production supervisor can maintain up-to-the-instant counts of all operations throughout the entire plant.

You can also count on chewing gum to help employee's on-the-job efficiency. Chewing gum helps relieve tension—keeps the throat moist—and prevents "false thirst" yet leaves hands free for work. That's why more and more plant owners are making Wrigley's Spearmint Gum available to everyone.

Complete details may be obtained from Production Instrument Company, 710 West Jackson Boulevard, Chicago 6, Ill.



The Wizard Electric Counter



AC-51

Bethlehem-Alameda, where T. C. Ingersoll is manager, keeps a force of 1500 men busy at the present time, while at the Bethlehem Shipbuilding Corporation in San Francisco 3200 are employed. Company officials report that there are about 5,000 good ship mechanics on the Pacific Coast at the present time. The war did not develop any additional supply, as the work requires long experience. Repair labor on the West Coast is paid \$1.67 an hour, as against \$1.50 on the East Coast. On new construction the Western rate is \$1.53, only 3 cents above the East.

The President Cleveland was started as a Navy transport, and the design later changed for passenger service, which has left the ship with its originally-planned 21 knot speed, but not as much passenger capacity as if it had been planned for civilian use. It has duplicate engine rooms, each equipped with a 10,000 h.p. G-E turbine electric engine. Small motors on the Cleveland are mostly Westinghouse.

It is the first ship able to load substantial cargo through a "hatch" in the side. The construction is longitudinal riveting and transverse welding. Fire safety is provided by sprinklers in every room controlled by a central CO2 room. Parts of the ship also can be shut off by steel doors, a feature valuable in case of shipwreck as well as fire protection. Doors between compartments are operated by magnets, and can be released either from central control or individually.

For rat proofing, \$500,000 was spent. Every door is flush, ceilings are blocked off and there are no spaces where rats can hide or openings through which to enter or escape.

Chamber of Commerce Conference Planned For Los Angeles

Los Angeles will be the scene of the United States Chamber of Commerce industrial Relations Conference, February 26 and 27. The Southern California meet is a part of a nation wide plan for group conferences for the purposes of discussing the following: Developments under the Taft-Hartley law; Impediments to Industrial Peace; The Importance of Federal Mediation and Conciliation Service; The Wage-Price-Profits Issue; Contract Developments and Trends; Legislative Issues.

Employers, educators, and other leaders from the area covered will be invited to attend. Speakers for the program will be drawn from management, government and the professions.

The purpose of the conferences will be to orient employers and others concerned with employer-employee relations in the light of current development, such as experience under the Taft-Hartley law, wage-price-profit trends, new legislature issues and problems in contract negotiations.

Building Industry Due For Rosy Year in '48

Tired of waiting for lower prices, Denverites give new construction the green light with plans worth \$40,000,000

DENVER—With \$40,000,000 budgeted for 1948 spending by Denver industrial and commercial concerns and residents, there won't be any slowing up of building activity in the Colorado capital city very soon.

Contractors have found that people are tired of waiting for prices to come down and have decided to go ahead while the going is good, hoping to get in on the obvious advantages of having desirable facilities while business still is humming.

1947 building permits in Denver totaled about \$30,000,000, according to Peter J. Allen, chief city building inspector. "More proposed buildings and projects are on the drawing boards of Denver architects than ever before," he said recently.

Outdistanced only by Los Angeles and San Francisco in building permit valuations during the autumn, Denver is one Western city that simply cannot visualize all the expansion now being planned for it.

Most of the big stores have costly remodeling programs planned. The \$16,000,000 Valley Highway, to give Denver its first cross-town freeway and speed truck and passenger through the city from north to south, is all ready to start, with most of the land now in the city's hands. Denver public schools will spend \$1,500,000 on additions and improvements. Stadia, college buildings, churches, hospitals—all types of building and construction projects, it seems—are included in Denver's 1948 program.

Industrial construction includes the Gates Rubber Company million dollar warehouse and Gardner-Denver's \$150,000 warehouse. A Denver printer is spending close to half a million dollars on a new plant and several bottling plants are to be built, including one by Coca-Cola and one by Canada Dry.

Railroads, public utilities, airlines, oil companies and miscellaneous industries

are set to move fast on building programs that will be hurried to completion.

None of this touches the great home construction field, which may prove to be the biggest of all. The enormous home building job done in Denver last year doesn't seem to have made a dent in the backlog of housing demanded. It begins to look as if that postwar depression isn't going to be able to find a place to land in this country and will have to go on to some other part of the world. Everybody here is just too darn busy to pay any attention to it.

Oil Men Whoop It Up

Mountain states oil men had their annual powwow in Denver in November and made an otherwise dull session memorable by staging several of the best parties Denver has seen in many a year. The Fred Manning family, father, son and wives, put on a party at the Brown Palace hotel for all the registered delegates of the Rocky Mountain Oil & Gas Ass'n. Known all over America as drilling contractors for large and small oil companies, the genial Mannings now are celebrated as party throwers.

Halliburton Oil Well Cementing Company of Duncan, Oklahoma, followed suit with a stag party at the Shirley-Savoy hotel for some 500 guests which must have used up at least \$5,000 of Halliburton's profits for the year. It all shows that Rocky Mountain oil men now are the darlings of the industry and that everybody is courting them. The bulky roster of delegates from Tulsa, Texas cities and other outlying points indicates that the oil industry is turning more and more of its attention toward the high country, long considered by geologists the last great undeveloped petroleum province in continental United States.

Setting some sort of record, the mountain states oil men succeeded in naming

an important man with one of the major oil companies to the presidency of their oil and gas association for 1948. This man is Hugh A. Stewart, Rocky Mountain division manager for The Texas Company since 1936. Usually the "majors" let some enterprising independent run the group.

Born in Colorado at the famous old mining camp of Aspen, Stewart lived in gold mining camps as a boy and graduated as an engineer from Colorado School of Mines. Step by step he climbed the ladder, spending most of his time in the mountain states. Today no man in the industry knows the area more thoroughly and the Texas Company has important oil production in all the mountain states from a total of 731 wells. Counting dry holes, the Texas Company probably has drilled close to 1,000 wells in Montana, Wyoming, Colorado and Utah.

"Lousy Transportation"

Wyoming's plenty-smart Governor, Lester C. Hunt, known as the only dentist ever elected to such high office in the United States, is proving to be one of the really smart executives of the Western states. Whereas other high officials perennially adopt the safe attitude of the ostrich, head buried in the sand, so far as transportation problems are concerned, Wyoming's young governor brashly sails in and questions his electorate as to what they think of the state's transportation set-up.

What they think is hardly publishable. Right back at him they came, from every section of the state. Prize example of a punk railroad is the Burlington's pathetic north-south line that crawls like a caterpillar from the Union Pacific line at Cheyenne northward through much of the state's best territory to connect with the Northern Pacific beyond the state line at Billings, Mont. But bad as that service is,

(Continued on page 66)

Building Industry Due For Rosy Year

(Continued from page 65)

it is good compared with the utter lack of rail facilities in many important sections of the state.

"Jerkwater" transportation was what a Wheatland physician called it. He pointed out that three-fourths of the state has inadequate transportation. "It is the greatest deterrent of the north and Big Horn basin country. You can get mail from Wheatland to Laramie quicker by dogsled than you can by regular agencies. Only the southern portion of the state is adequately served," he declared.

The thriving northeastern corner of the state, supported by fast-growing oil fields and the dependable Black Hills tourist trade, complains that there is no communication between that section and eastern Montana. This handicap diverts thousands of dollars to other states every year.

This round of squawks from Wyoming was but an echo of the howl raised in Colorado recently when their governor innocently inquired, "What is holding back Colorado's industrial development?" From every section of the state the same answer came back loud and clear: "Lousy transportation." Businessmen in every corner of the state growled the same complaint — not enough transportation and

what there is has more faults than virtues.

Insofar as the defects can be corrected by air transport, something is being done about it. Monarch Air Lines, Challenger Air Lines and the larger cross-country systems are doing their best to meet the most glaring needs — and making a pretty penny, at that.

So far as passenger and air express business are concerned, airlines will step in where the railroads fear to tread and coral the business, making the plight of the railroads all the worse. But the region cannot develop industrially without good surface transportation and the tragedy of the era in the mountain states is the utter inability of the railroads to step up and meet the challenge facing them.

The situation probably is not the railroad's fault so much as it is their misfortune. Whatever it is, the public no longer is confused. People who have votes, as well as money, now see clearly that what they need is better transportation. Not getting it from existing agencies, it won't take them long to resort to other means of accomplishing their purpose.

Colorado Springs wants more industries and was prepared to build a factory and lease it at nominal rental to the Timken

Roller Bearing Company, which had announced it likes the Pikes Peak city. But the company decided to build the building itself and has sent out a full crew of officials from the Mount Vernon plant. The new plant will make rock bits. Timken has been coaching supervisory personnel so they will be ready to take over the Colorado Springs operation in the near future.

At Denver the Eaton Metal Products Company received some attention recently when a gas shortage in Brooklyn, N. Y., caused Eaton's to rush by air freight an eight-foot Venturi tube from the Colorado city to New York. Seems that the gas mixing equipment is obtainable only in Denver, and that the Eaton people supply such equipment to cities all over the country and a few spots abroad. By using the big Venturi tube, liquefied petroleum gases can be mixed with ordinary manufactured gas to supplement short supply in city gas mains.

Eaton's string of plants all over the mountain-and-plains area will be able to take care of more metal fabrication than ever with completion of new facilities at its Billings, Mont., factory. There two new buildings and a new loading dock will increase productive capacity by 60 per cent, enabling the firm to spread out to cover markets in Washington, Oregon,

Planned Lighting with
ZENITH



Here's a commercial fluorescent luminaire that's engineered for superlative lighting performance—yet costs only a very little more than conventional equipment. Precision formed on precision tools, the Zenith installs easily, services quickly. Polystyrene plastic side panels are light, strong and shatterproof. The shielding unit controls the light for greatest effectiveness, with a minimum of surface brightness. The Zenith may be installed individually as shown, or in continuous mounting.

Write for the new Zenith catalog sheet






OFFICES . . . STORES

FOR THE BEST IN INDOOR AND OUTDOOR LIGHTING IT'S SMOOT-HOLMAN

Idaho and Alberta, Canada. About \$100,000 is being spent on the Eaton plant at Billings. J. R. Travis is president of the company. Other Eaton plants are located in Denver, Casper, Albuquerque, Omaha, Hutchison and Kansas City.

When the Colorado Governor's Committee on Resources Development settled down to work last month, the question of what to use for money didn't present so much of a puzzle as had been feared. From the CED (Committee for Economic Development) came a grant of \$7,500 with word that another \$7,500 probably would be along later. The governor found \$5,000 for the committee, from an emergency fund. With \$20,000 in sight, the committee fared forth to put the bee on industrialists for as much more, anticipating no great trouble in developing a war chest of some \$42,500.

Best break, aside from the CED grant, or maybe including it, was in finding that Earl Mosely was available to help get the committee's work off to a good start. Mosely recently resigned as city manager of Colorado Springs after many successful years in that post, and his high national standing and quick grasp of industrial problems assured the committee some tangible accomplishments in a short time. While the committee has many difficulties ahead of it, it seems to be over its first hurdles.

Frustration Avoided

To prevent the Friendship Train from becoming the Frustration Train, the Robert H. Clark Company of Beverly Hills, California, sent a shipment of the Genie can openers, that they manufacture, by air express to New York, where they met the third section of the Friendship Train and were shipped overseas. The idea originated with John B. Panushka, a Clark executive, who discovered that no one else had thought of can openers. He says they are as scarce in Europe as carefree salesmen.

More Timber For More Baskets

Three million half-bushel and bushel baskets are needed in Idaho for fruit and vegetable shippers. Produce Containers, Inc., of Weiser, Idaho, produced over 300,000 baskets in its first year of operation, but will have to make 10 times as many to take care of the number actually needed, according to Kenneth Hill, manager of the plant.

In addition to the 300,000 baskets made, Produce Containers supplied about 2,000,000 lettuce covers, Mr. Hill declared.

In past years most of these baskets were made in Texas and shipped to Idaho. Next year the number of baskets manufactured at Weiser will reach 800,000, still short of the number needed. Production is limited by the amount of timber available.

Conveyco Engineers Put EMPHASIS on SYSTEM!



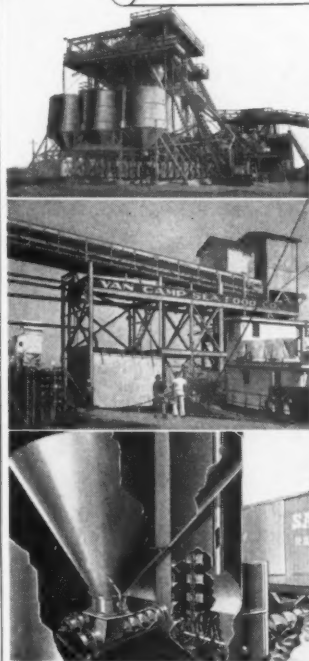
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Make your plant serve you better!

Increase efficiency now to meet growing competition. Time and money saved in material handling often means the difference between profit and loss. Conveyco systems synchronize production and handling methods to meet individual plant requirements. Your present conveying equipment can often be coordinated to gain greater speed and production.

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A large staff of experienced engineers are ready to serve you. Call today—for prompt action, **Jefferson 6121.**



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REGIONAL REVIEWS

THE PACIFIC NORTHWEST

Timber Operations Called Base of Future Economy

At the Pacific Logging Congress a growing, stable industry was predicted as a result of sustained yield operations.

PACIFIC NORTHWEST—With the coming of winter and the shut-down of logging operations, loggers and lumbermen are finding their way out of the woods and into the cities, where problems of the timber products industry will be thoroughly discussed at various meetings to be held throughout the Northwest during the coming months. One of the early meetings of this kind was the thirty-eighth annual meeting of the Pacific Logging Congress held in Seattle in November.

One of the largest gatherings of loggers and lumbermen, the Pacific Logging Congress attracted some 2,000 members of the industry and included a comprehensive machinery show with more than 80 equipment exhibitors. Discussions at the three-day conference were limited to three topics, of which the principal one was transportation of logs. However, some of the incidental statements presented during discussions seemed to have more lasting significance than the topics themselves.

One of the outstanding comments was that of E. T. F. Wohlenberg of the Western Forest and Conservation Association who presented an estimate of future forest production during the discussion of natural resource roads. Said Wohlenberg, "An economy based on cellulose may be necessary in the future of the Pacific Northwest to replace depleted mineral resources and support an increasing population."

This prediction that the future of the Northwest lies in its timber resources, or rather its timber growing possibilities, was based on the increasing trend toward the development of sustained yield operations, although it was stated that 30 years will be required to get much land under good growing practice. Increasing utilization of timber will have the same effect as an increase in the amount of available timber, and the further development of sustained yield will be a major factor in stabilizing timber operations.

Wohlenberg set the present allowable cut in five Western states (Washington, Oregon, California, Idaho, and Montana) and the province of British Columbia at 17.3 billion board feet per year. During the decade of 1937 through 1946 the average annual cut in this area has been only 15.8 billion board feet, well within the limit which will permit natural replacement, although he admitted that overcutting is going on in some areas.

During the next 30 years increasing utilization may be expected to add 10 per cent to the allowable cut each decade, so that by 1977 the allowable cut in the Northwest will have increased to 22.1 billion board feet per year. The larger annual cut is expected to increase the operation of remanufacture plants.

Truck Transportation

Inasmuch as the primary topic under discussion at the time of these remarks was natural resource roads, the present allowable annual cut of 17.3 billion board feet was translated into 70 million tons of transport. As E. T. Clark of the Pacific Northwest Loggers Association pointed out that roads have replaced skids, waterways, and railroads in the transportation of logs, the transport figure represents some 30,000,000 truck loads carried over roads an average distance of 20 miles per load.

Truck transportation of logs is a relatively new operation; 30 years ago it was being tried on a few operations, but only 20 years ago at a meeting of the Pacific Logging Congress a speaker who had the temerity to predict that trucks would in the future replace other methods of log transportation was credited by many loggers as being unrealistic. By this year truck transportation had become so important to the loggers that practically the entire meeting was devoted to consideration of various phases of the problem.

One of the principal points of concern as far as the loggers are concerned is the low weight limitations placed on trucks using the public highways. At the conference a great deal of the discussion centered around a report on the efficiency of present highway systems as it affects the logging industry.

Study of Roads Proposed

The report was made by John S. Worley, professor of transportation engineering at the University of Michigan, and was formally discussed by civil engineers from the faculties of five Western universities. In general, the report questions whether the most efficient use is being made of public roads and specifically recommends that an extensive study and research be made on the better use of roads.

A definite program to accomplish these objectives was proposed by E. T. Clark who said that the lack of long range, overall planning has led to traffic restrictions which increase log transportation costs to a point where low grade logs are being left in the woods and wasted.

As a start toward removal of costly restrictions Clark asked for cooperative planning by logging, county, state and federal engineers under a program that would include the following six points: (1) Survey the potential volume of natural resources (including both timber and mineral); (2) Analyze routes from sources to mills; (3) Develop road plans that will adequately meet the requirements for transportation of natural resources from source to mill (loggers can meet the additional costs for construction above normal standards); (4) Change traffic regulations to permit the efficient use of roads for log transportation; (5) Increased public use will result from such a road improvement program; and (6) Ask public highway

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1948

January, 1948—WESTERN INDUSTRY



JANUARY 15-30



THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

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Aluminum and
Acetylene
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with McDonald

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Plates



- ★ **SPEED UP PRODUCTION**
- ★ **CUT DOWN FATIGUE**
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Timber Operations Future Economy Base

(Continued from page 68)

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(Continued on page 72)

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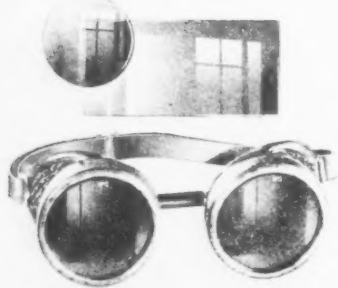
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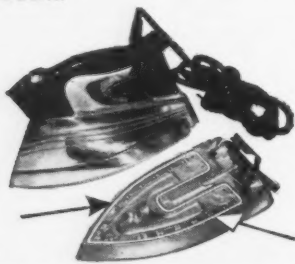
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Silastic* Seals Steam Iron

In devices as varied as aircraft engines and steam irons, Silastic is proving its usefulness as a gasketing material. The reasons are obvious enough—if you know Silastic. These silicone rubbers are the only rubbery materials that stay elastic on continuous exposure to temperatures ranging from -70° to 400° F., and that have maximum weather resistance and minimum compression set at high temperatures.



A Silastic gasket seals the steam chamber of the "Monitor" steam iron, made by Parts Manufacturing Company, division of F. L. Jacobs Co. This iron reaches its operating temperature of 500° F. in three minutes.

In the case of the "Monitor" steam iron shown above, the design engineer listed the properties required to give him a satisfactory gasket to seal the sole plate to the sole plate cover. His list read as follows: Wanted, a material which is

- insoluble in water
- stable up to 500° F.
- stainless and odorless
- permanently pliable and elastic

He tested many materials trying to find that combination of properties. None of them would work. Several months later he got a sample of Silastic 125. It met his needs so exactly that it seemed made to order. The initial cost per iron was very low and life proved to be long. None of these gaskets have failed in two years.

In addition to gasketing applications, Silastic is being used more and more extensively as an electrical insulating material and as calking and potting compounds. The properties of the various Silastic stocks are described in pamphlet No. X 21-2.

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Timber Operations Base of Future Economy

(Continued from page 71)

Whether the foil mill will be re-erected at Tacoma or Spokane has not yet been disclosed, but it will definitely be located in Washington. Inasmuch as Permanente has purchased the Tacoma reduction plant while it only leases the Mead reduction plant and the Trentwood rolling mill, both near Spokane, it might be a good guess to pick Tacoma as the site which will be selected for the foil mill.

TACOMA—Industrial Engineers & Contractors won the Port of Tacoma contract for reconstruction of pier No. 1 with a low bid of \$266,145. Awarding of the contract is another step in the comprehensive port improvement program.

Richard J. Camp, who developed and has used successfully for the past year an improved method of electroplating aluminum with chromium, has been given a major contract for plating a line of soda fountain dispensing equipment manufactured by a California producer. Although Camp's process is considered quite superior by the few who are familiar with it, its use has been restricted to a line of bathroom fixtures until the award of this contract.

The Naval supply depot, which was expected to be made available to industry for plant sites in the near future, has been reserved for use of the National Guard and Army Reserve forces. The situation has not been entirely clarified and it is hoped that a portion of the depot not required by the army will be made available to industries in the Tacoma area.

Commenting on the possibilities of developing a more fully integrated aluminum industry in the Northwest, D. L. Marlett, assistant administrator of the Bonneville Power Administration, pointed out at the November meeting of the Columbia Basin Inter-agency Committee that the shortage of electrical energy is a major factor in holding up any significant development of aluminum fabrication in the area. Bonneville estimates that the power shortage will not be materially alleviated until generation at McNary and Foster Creek dams can be put onto the transmission lines. With McNary Dam in the preliminary construction stages and Foster Creek still in the exploratory stage the outlook is not too bright.

Incidentally, the meeting of the Columbia Basin Inter-agency Committee just mentioned was held in conjunction with the Washington state Columbia Basin Commission and represents the first time that any agency of the state has deigned to meet and cooperate with the federal committee in the year and a half of that committee's existence. The occasion indicates the deep concern which the state feels concerning the low appropriations made by the Congress, and was intended to form the basis for a united appeal for adequate appropriations in 1948 to push the Columbia Basin irrigation project toward completion.

While the irrigation project is primarily designed to provide something over 1,000,000 acres of new farm land in central and south central Washington, completion of the project will have a considerable effect on industrial development in the Northwest. All through the area to be brought under irrigation, which is roughly bounded by Coulee City, Ephrata, Pasco, and Connell, there has been a boom attitude since work began on the irrigation facilities after the war. However, appropriations made by Congress for the present fiscal year will be largely expended by the first of February, and unless deficiency appropriations are forthcoming the project is destined to suffer a serious setback.

Assessing the value of such an irrigation development to industry, M. H. Allquist, president of the Washington State Reclamation Association, pointed out that a single wheat farm of 1,000 acres (now common in eastern and central Washington) supports only a single family with a total investment in equipment of about \$20,000. When this farm is placed under irrigation it will support 80 families who will invest in equipment some \$200,000.

When it is considered that this does not take into account the increase required in distribution and service facilities to serve the population which will be increased 80 times, it can readily be seen that completion of the Columbia Basin irrigation project is a factor of no small importance to industry, not only in the Northwest, but in all of the West.

Unlawful To Come Within Six Feet of Power Lines

If the offender is still alive, there is a new California state law which provides a maximum sentence of \$500 fine and six months in jail for anybody who brings any object within six feet of a high-voltage power line.

The California State Division of Industrial Safety has launched an educational campaign, backed by the new law, to reduce the number of accidents, many of which have been fatal, caused by heavy mobile equipment coming in contact with electric power lines.

A safety pamphlet has been published pointing out to well drillers, truckers, house movers, crane operators, farmers, and other heavy equipment operators the necessity of maintaining a safe clearance zone from overhead power lines in all their operations.

Section 385 of the California Penal Code, which is the new law, became effective September 19, making it a misdemeanor for heavy equipment operators to move their equipment within six feet of power lines. Penalties for violation apply both to owners and employee operators of equipment.

Import Prospects From Europe

IMPORTS being fundamentally essential to restore trade with Europe, E. E. Schnellbacher, of the Office of International Trade, Department of Commerce, was sent to Europe in the summer, and returned to the capital shortly before Christmas.

It was one of Schnellbacher's special tasks to find the solution for the balanced trade between European countries and the West Slope of the United States. Naturally, he found the European countries want almost everything available in the Western States of the United States; but the snag is that they have few current facilities to export their products to the West Coast.

Schnellbacher, one of the outstanding men of the career group of the Department of Commerce, reports that most of European businessmen are stopped from initiating an export business with America because they fear our mass-marketing methods.

He found also that they were almost completely ignorant of the tremendous size of our markets, and of the difference in the tastes and wants of the various sections of the country, as well as the difference in the demands among those of different income levels. He found that the Europeans were inclined to go back over

the beaten path of prewar markets, and that they were bewildered, usually, by discovering these markets were shot and riddled, and that, in effect there were no markets in the areas to which they were accustomed.

Apparently most of Europe's businessmen have so long been under the restraints of the authoritarian governments which sprang up before the war that they cannot quickly adapt themselves to a freer economy in which to operate. Every trained observer who comes back from Europe seems impressed with the fact that the European businessman may not be able to recover even a modicum of independent habits for generations.

Most of the returning travellers apparently feel that the United States bids fair soon to be an island of free enterprise, free competition, and liberty of the individual, in a world of highly and tightly controlled police states.

The police state world obviously cannot be maintained permanently; but it is bound to give us the occasion for much serious thought and hard work, as we fight to keep the torch of individualism aflame. The trouble is that we have many well meaning businessmen in this country who apparently think something approaching a police state would not be so bad for us.

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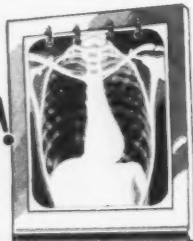
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MECHANICAL KINKS

By W. F. SCHAPHORST, M.E.

Former Engineering Instructor
New Mexico State College

A New Rule For Figuring Worm Gears

Here is a new rule—and a good one—for determining the efficiency of worm gears. It is more accurate than other rules that the writer has seen in print. It relates to single worm reductions, and is as follows: Multiply the reduction ratio by 0.0047 and subtract the product from one. Thus for example if the reduction ratio is 50 to 1 we have this: $50 \times 0.0047 = 0.235$. Then $1 - 0.235 = 0.765 = 76.5$ per cent efficiency.

It should be noted that this rule relates only to "single reductions" and it might be well to add that it should not be applied if the reduction ratio is greater than 100 to 1. Why? Because it is obvious that at some point the rule would show an efficiency of zero, and that would be wrong. Thus for instance if you will try to work out a reduction of 213 to 1 you will find that the rule gives an efficiency of exactly zero because $0.0047 \times 213 = 1$. Subtracting 1 from 1 you get zero, of course. So, don't apply the above rule to single reductions greater than 100 to 1.

As a matter of fact single reductions as great even as 100 to 1 are seldom made because of their inefficiency. Higher efficiencies are attained by using two reductions. Two reductions, usually, are enough. To explain the point let us take the example in which the total reduction is to be 50 to 1, the first reduction to be 5 to 1, and the second reduction 10 to 1. That will give us a total reduction of 50 to 1 because $5 \times 10 = 50$. Applying the above rule for each reduction we have:

First reduction:

$$1 - .0047 \times 5 = 0.977 \text{ Efficiency}$$

Second reduction:

$$1 - .0047 \times 10 = 0.954 \text{ Efficiency}$$

Now to find the overall efficiency we must multiply these two efficiencies together and we get $0.977 \times 0.953 = 0.93$. This means that the efficiency will be 93 per cent as compared with the 76.5 per cent efficiency computed above using only a single reduction.

Again, let us say that you want a reduction of 2500 to 1. The result can be obtained in several ways, but let us first try a double reduction of 50 to 1 and 50 to 1. That will give us a 2500 to one reduction because $50 \times 50 = 2500$. In the first problem above we found the efficiency of a 50 to 1 reduction, single wheel, to be 76.5 per cent. Double reduction we would

then have $0.875 \times 0.765 = 58.5$ per cent efficiency. In other words, nearly one-half of the energy would be lost in friction.

From an efficiency standpoint it is obvious now that it would be better to make it a quadruple reduction. Thus above it was shown that by using a 5 to 1 and 10 to 1 double reduction the efficiency would be 93 per cent. So, using two such reductions in series the overall efficiency of the quadruple reduction would be $0.93 \times 0.93 = 0.86$ or 86 per cent efficiency as compared with 58.8 per cent. The power saving would be considerable—over 27 per cent.

Fatality Caused By Poor Piping Layout

So much has been preached and printed about the necessity of allowing for expansion and contraction in steam piping that one reads with amazement that a man actually lost his life when an elbow failed because of poor design. It appears that not enough room was allowed for expansion and contraction between boilers. As a result the elbow was subjected to a stress that it could not withstand, and it failed. A man lost his life.

All accidents of this sort are preventable. The designer of the above piping layout very likely "knew better" but he may have been rushed. One more minute of thought given to that detail might have saved a man's life. Or, the checker should have caught the error. Sometimes installation men discover errors of this kind. Sometimes the operating men discover them. In this instance the mistake "got past" everybody.

How to Clean Glass Tubes

The writer does not know of anything better for cleaning glass tubes, including boiler gage glasses, than diluted hydrofluoric acid. Be extremely careful, though, because hydrofluoric acid dissolves nearly all substances, including glass. It does not dissolve lead and is therefore usually kept in containers made of that metal.

Soak the glasses in a 5 per cent solution of the acid for 15 to 20 minutes and then wash and rinse in clean water—preferably running water. Blowing out with filtered compressed air will then assist further—provided you have such air on tap. Usually the results are first class without the air blow finish. Nitric acid, also, does very well, but hydrofluoric acid is better.

REGIONAL REVIEWS

THE WASATCH FRONT

Dreams of More Industry Are Coming True In Utah

Geneva Steel alone has provided 5,600 new jobs, and millions are going into plant expansions which will boost employment

SALT LAKE CITY—The uninhibited dreams during the war of a peacetime industrial growth are being transformed into realities in Utah faster than most people realize.

There is still a widespread tendency to regard employment and payroll figures as a pleasant hangover from 1943 and 1944, which has persisted longer than could be reasonably expected and which cannot continue much longer.

The idea that the high employment is based on expanding industrial activity, and need not be temporary unless there is a general slump, does not seem to have seeped into the public consciousness yet.

Geneva Steel alone has provided new employment for about 5,600, the largest industrial payroll in the state and more than half the prewar employment in the state's most important single industry—metal mining and smelting.

Several steel-using industries have, or are in process of, substantially expanding their activities and employment. The Chicago Bridge & Iron Company recently announced plans to construct a plant in Salt Lake City to fabricate storage tanks and structural steel for various industries, notably oil. Scope of the new enterprise was not revealed but unofficial reports indicate that it will be one of the state's major industrial plants.

United States Gypsum Company and Western Gypsum Company are in process of spending three or four million dollars for new plants in Sigurd, Utah, for production of wall board and other plaster products.

Thermoid Western Company has started a "pilot" operation at its new Nephi plant and is scheduled to be in full production within 60 to 90 days with a payroll of around 300.

The American Potash & Chemical Company is trying to buy the war surplus Kalunite plant in Salt Lake City for con-

version to the production of phosphate fertilizers. The company has offered \$752,000 for the property and agreed to spend an additional \$750,000 for the conversion job.

Kennecott Copper Corporation will shortly complete a \$4,700,000 improvement program at its Utah properties, the major items being a new rail line from the open-cut mine to the mills and seven 3,300 hp. electric locomotives.

The cement industry is expanding its capacity and much of the state is figuratively crawling with oil geologists.

Solar Corporation, a subsidiary of Gamble-Skogmo, Inc., of Minneapolis, Minn., recently let a construction contract for a new \$225,000 Western distributing center, which will be an auxiliary to the firm's storage battery plant which is nearing completion.

Numerous local firms are engaged in or planning expansions which will call for increased employment.

Level of Employment

A considerable part of the employment which will be created by all the current activity is something for the future. But as of November 1 the level of employment in the state was at an all-time high, not excluding the boom war years of 1943 and 1944. The State Department of Employment Security estimated total employment (exclusive of domestics, self-employed and employees of charitable and religious institutions) at 223,400, an increase of 10,769 over the total for the corresponding date last year.

Average hourly earnings increased from August 1946, to August 1947 from \$1.08 to \$1.20 in manufacturing; from \$1.38 to \$1.52 in metal mining; and from \$1.59 to \$1.94 in coal mining.

The increase in employment and hourly earnings should clear up, in part at least, the "mystery" of where all the money is

coming from to keep business at a booming level.

Payrolls for workers covered by unemployment insurance totaled approximately \$75,000,000 for the third quarter, well above the previous high of \$72,275,000 for the fourth quarter of 1942, when war employment in this state reached its peak. The total for the first three quarters was \$208,000,000, which makes it certain that the annual total will exceed the previous high of \$255,000,000 for 1943.

The Utah Public Service Commission and the Mountain Fuel Supply Company are embroiled in a rate case which could have some repercussions on the coal industry when the prevailing insatiable market comes to an end.

Several months ago the natural gas distributors sought permission to reduce domestic rates by about 15 per cent and add an equal amount (in dollars) to the charges for industrial service. The industrial rates were established when the gas company had a surplus, when it was seeking new business to absorb the excess and when slack coal was about one-third its present price.

Instead of letting the domestic users take the 15 per cent reduction, the commission ordered a general rate investigation and recently came up with an order directing the company to reduce its annual charges by \$1,366,291. If this was applied only to domestic and commercial users it would amount to a 36 per cent reduction.

Such a cut would greatly increase the squeeze which natural gas has already put on high priced coal, providing the gas supply permitted the addition of new customers.

Company officials, however, maintain that if the order is permitted to stand, development of new supply sources would come to a standstill.

The company is seeking a rehearing and, if denied this, will undoubtedly take the case to the supreme court.

SAFETY POINTERS

By JOHN PAUL
Chief Safety Engineer
Ex-Marine Guards Company, Los Angeles

AN EMPLOYER of an assailant who attacks a fellow worker on the job is liable for damages, according to a recent decision by the California Supreme Court.

This decision was given in the case of an assailant employed by a building contractor. During an argument over work with the plaintiff, hired by a subcontractor, the assailant threw a hammer at the plaintiff, seriously injuring him.

Following suit by the injured, the trial court awarded judgment against the assailant but not against the assailant's employer. This was affirmed by the District Court of Appeal.

The California Supreme Court decided differently, however, awarding the plaintiff judgments against both the assailant and the assailant's employer. The Court resolved the issue by construing Section 2338 of the California Civil Code to mean, as to the principal's liability that the ham-

mer throwing incident was "within the scope of the employment, the injury to plaintiff having resulted from a dispute arising out of the employment."

Fire-resistant paint, listed and tested by the Underwriter's Laboratories, is now available from several manufacturers.

In laboratory tests the blue flame of a Bunsen burner (about 3000°F.) set fire to an ordinary painted wall in a one-minute exposure.

With one of the new patented fire-resistant paints, a wall merely formed brown blisters when exposed to the same heat, and flames extinguished themselves within eight to 15 seconds after the burner was removed.

Engineering revision may be indicated, when it is found that safe practices are awkward, difficult or even impossible, under the present conditions.

For example, a certain plant used a small enclosed booth to solder together

small parts with cadmium. The booth was two feet square across the front opening and two feet deep. In order for the operator properly to perform his work, it was necessary that he lean forward into the booth to watch the operation.

Because the booth was exhausted from the top, the fumes were being drawn through his breathing zone. The corrective measures proposed by a consultant consisted of providing a deeper booth and exhausting it from the rear. Also a large mirror was installed, thereby permitting the operator to observe the operation from the outside, and making it unnecessary for him to lean into the booth.

Saving With Handling Equipment

"WHEN a skilled operator must stand idly by at \$2 an hour while waiting for parts to be carried or dragged to his machine by muscle power, you don't have to be an expert accountant to figure that the cost of the finished product is skyrocketing," the Society of Industrial Engineers were told at their November meeting in Oakland by William O. Hicks, president of the Southern California Materials Handling Association. He is Los Angeles district manager for Yale & Towne.

Among evidences of savings through intelligent use of materials handling equipment, he cited the following:

Typical savings in moving a shipment of 100 tons by the use of palletized unit loads and power-driven fork trucks amount to 479 man-hours, according to estimates by Navy handling experts. Moving the loose cargo would require 682 man-hours as against 203 for the same cargo palletized. Approximately 77 pallet loads accommodate the same amount of goods that require 4,080 separate packages when shipped loose.

One man with a fork truck handling palletized material can unload a box car in 1½ hours. To do the job by hand formerly took four men a half day. In another case, 1,000 packages were moved 200 ft. and stacked by a fork truck in 0.4 hours. To do the job manually originally took 38.3 hours. A saving of nearly 38 hours.

A Western cannery that replaced muscle methods with fork trucks and pallets saved over \$5,000 a year on a single operation — moving cases of canned goods from production line to warehouse.

Still another example is that of the battery manufacturer who combined fork trucks, palletized loads and roller skates (floor type) conveyors in its highway trailers to cut its loading and unloading time of a 12-ton trailer from 360 man-minutes per handling operation to a 46 man-minute operation — a saving of 87 per cent.

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Paper Work Stymies Unions and N. L. R. B.

UNIONS are beginning to file petitions for certifications, but due to the many errors in the papers presented, and changes in officers, there is a veritable merry-go-round, according to Gerald Brown, regional director in charge of the San Francisco National Labor Relations Board.

This is how progress is bogged down by unions who do not understand how to present their petitions. The papers are sent to NLRB, found not to be in order and returned. The unions attempt to present them properly, but are slow in doing so, thus by the time NLRB gets the papers back, the officers who have signed are no

longer in office, so back they go again for the proper signatures. . . .

There are on hand now at the NLRB offices in San Francisco 32 petitions by labor organizations asking for certification. Of these, approximately 40 per cent are AFL; 40 per cent I.A.M. (International Association of Machinists); 10 per cent CIO, and 10 per cent independent unions or individuals. The CIO presented more petitions than this, but due to faulty paper work have had them returned.

Fifty-five charges against employers have been filed. However, of the 55, many are individuals who filed when the union involved was not authorized. For exam-

ple, 17 individuals filed for Sears Roebuck and 17 for Barr Packing Company. In both cases the unions were not authorized.

Thirty-three petitions for union shop elections have been received at the regional office and 15 cases have been filed by employers against unions, including The Sunset Line & Twine Company of Petaluma and the Safeway and Purity stores of Marin County. Management of these stores charge the AFL with refusing to bargain in good faith. They claim that the union will not bargain for clerks until the stores bargain for the supervisors.

There were 460 cases pending when the Taft-Hartley law went into effect on Au-

• We have come a long way in labor relations in two years despite all the fire and smoke over the new Labor Management Relations Act. December, 1945, saw many bitter strikes and many dogged groups of strikers, like this little knot of Utah packing house workers.



gust 22. These are gradually clearing up, as management and unions learn just how the new Labor-Management act affects them. There seems to be no hesitancy on the part of unions to become certified with NLRB, declared Mr. Brown. Despite much labor propaganda to the contrary, unions are conforming to the law. It's only the paper work that is slowing things up now.

Loyalty Oath Should Be Required, Says Roth

Employees should be required to take a loyalty oath as a condition of employment, according to Almon E. Roth, president of the San Francisco Employers Council, who spoke before the twentieth annual meeting of the California State Chamber of Commerce in Los Angeles.

Mr. Roth further declared that the cause of ridding our entire economic structure of Communist influences would be helped immeasurably if employers would take a more aggressive and affirmative position by screening out all Communists and disloyal persons.

The following form of declaration is suggested by Mr. Roth as one means of ridding our economic structure of Communist influence:

"I hereby declare that I am *not* a member of nor sympathizer with any Nazi, Communist or Fascist organization and I understand that I am subject immediately to discharge from employment if I ever join or *express sympathy* or give support to any such organization. Furthermore, I hereby openly condemn such organizations and the principles for which they stand and hereby reaffirm my faith in the principles of American democracy and the Government of the United States of America.

Some unions are requiring such a loyalty declaration as a condition of membership, according to Mr. Roth, and he firmly advocates that every employer require *new* employees to execute the above affidavit.

Ample evidence of the close tie-in and alliance between some American unions and the International Comintern, was seen in the recent strikes of crews of American vessels in French ports in open support of the Communist program in France. Mr. Roth further pointed out that the troubles of France and Italy today prove how effective Communists use strikes to accomplish their ultimate objective of social and political revolution.

How to Compute Holiday Overtime

This year Christmas and New Year's joined Thanksgiving as Thursday holidays. An employer under the Wage-Hour Law would compute overtime by these rules:

(1) An unworked holiday is not counted as time worked in determining whether an employee has worked over 40 hours in the week. Only the actual hours worked are counted, even though the unworked holiday is paid for.

(2) If the employee is paid for the unworked holiday such payment may not be credited against overtime due him for hours actually worked over 40 per week.

(3) If employees work on the holiday the Wage-Hour Act does not require overtime for such hours worked just because they are holidays. But overtime must be paid if these hours worked are in excess of 40 per week.

(4) If employees work the holiday and receive overtime at time-and-one-half because it is a holiday the extra compensation may be credited against overtime due for hours worked in excess of 40 per week.

The above information comes from the Industrial Relations Council of Salt Lake City, who warn employers that if their union contract provides other than the above, its provisions must be carried out.

Opinion Survey Shows High Morale

Morale is obviously high among employees of AiResearch Manufacturing Co. of Los Angeles, as shown by the 1947 opinion survey tabulated by Dr. Floyd L. Ruch of the University of Southern California.

The proportion of returns have mounted consistently in this annual survey, from 35 per cent in 1945 to 42 per cent in 1946 and 51 per cent in 1947. This last figure is seldom reached in studies of this kind, according to Dr. Ruch.

Returns on this survey show that 50 per cent of the employees feel they are receiving an "average" rate of pay for their jobs in comparison with similar jobs in other companies; 69.7 per cent think their pay, in comparison with other jobs in the company, is "about right," although 20.6 per cent feel their pay is "low"; the six paid holidays given by the company are considered above average in comparison to other companies by 48.8 per cent, and just average by 49.8 per cent of the employees.

Double time is paid by the company when employees work on any of the six holidays. In comparison with plans in other companies 48.3 per cent of the employees rated this "above average," and 47.6 per cent thought the practice "average."

Slightly over 60 per cent of the employees consider the AiResearch retirement and severance trust plan "above average," while 20.9 per cent "didn't know." A remarkable high percentage was given the question on whether or not the company had "fair rules." Ninety-eight per cent agreed that company rules were "fair."

An average of 50 per cent of the employees indicated that top management was "friendly," "clear" and "very fair" on wage control, promotions and helpfulness in job training. Slightly more than 50 per cent voted that management was "never" unfair.

NLRB Rejects Bellingham Case

The National Labor Relations Board has dismissed a petition of Local No. 6, International Fishermen & Allied Workers (CIO) for collective bargaining rights at the Beach Fish Company, Bellingham, Washington.

Petitions involving 13 unions throughout the nation were dismissed by the board because of failure of officers of the unions to file non-Communist affidavits and other-

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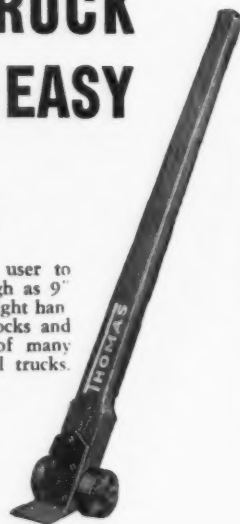
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wise comply with the Taft-Hartley Labor Act.

Thomas P. Graham, Jr., Seattle regional director of the NLRB, said the Bellingham case involved only 11 employees. The petition has been pending since before the Taft-Hartley Act went into effect.

Denver N.L.R.B. Furnishes Data

The Denver office of the National Labor Relations Board has spent a busy time since August 22, when the Taft-Hartley law became effective.

Twelve petitions for certification of representation were filed by unions. Of these, two were filed by the AFL, one by the CIO and nine by independent unions. There was one certification of representation by an employer and three decertification petitions filed by individuals.

There were 27 union security petitions filed; 25 by AFL unions and two by independent unions.

Two representation petitions and two unfair labor charges have been disposed of by the NLRB in Colorado since August 22nd.

A number of unfair labor charges which were pending in the NLRB office on August 22nd, involving unions which have not complied with requirements of the Labor Management Relations Act, have been transmitted to Washington for consideration, and it is felt that final action on these cases will be forthcoming in the near future.

According to the Regional Director of the NLRB in Denver, two CIO unions, 22 AFL unions and five independent unions have complied with the filing requirements of the Labor Management Relations Act.

S. F. Council Endorses Labor Law

The following resolution was unanimously adopted at a meeting of the San Francisco Employers Council:

RESOLUTION

It is the sense of this membership meeting of the San Francisco Employers Council that the employers of this city live up to the provisions of the Taft-Hartley law and insist that labor unions do likewise. It is the further sense of this meeting that employers do nothing which would tend to weaken the law but, on the contrary, observe both the spirit and intent.

ALMON E. ROTH
President

Eighth of a Million Bonus to Employees

A \$125,000 profit-sharing bonus was distributed to 520 home office salaried members of The Alexander Film Co., of Colorado Springs, Colorado.

The bonus, believed to be the largest ever paid by any Colorado organization, was distributed to members on the basis of length of service, individual merit and according to base pay rate.

The \$125,000 was the second bonus to be paid by the firm, producers and distributors of short-length motion picture advertising, this year, bringing the total amount to \$155,000. This is an increase of \$30,000 over bonuses paid to members in 1946.

Labor Groups To Test Law

Legal test of constitutionality of income tax increases which became effective when Oregon voters rejected the sales tax on October 7 will be started soon by both the AFL State Federation of Labor and CIO Oregon State Industrial Union Council.

CIO Convention Set For Portland

The 1948 National Congress of Industrial Organization convention will be held in Portland November 22-26, Stanley W. Earl, secretary-treasurer of the State CIO Council, has announced.

Mr. Earl said the site and date were definitely set in a meeting of CIO vice-presidents in Washington, D. C. Portland earlier had been tentatively selected for the convention, but it had been scheduled to start October 4.

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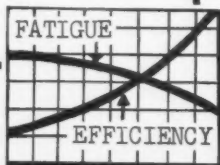
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THE WEST ON ITS WAY

ARIZONA

ARIZONA EDISON BUYS POWER SYSTEM AT YUMA—The Arizona Corporation Commission has approved the sale of Southern California Electric Power Co. properties and franchise in the Yuma area to the Arizona Edison Co. Purchase price was \$850,000.

TELEPHONE COMPANY EXPANDING—Mountain States Telephone & Telegraph Co. plan a three-story addition to their building at 242 W. Adams St., Phoenix, at a cost of \$750,000.

CALIFORNIA

\$10,000,000 LUMBER DEAL—The Ralph L. Smith Lumber Co., Kansas City, have purchased the Deschutes Lumber Co. at Anderson, and 49,290 acres of timberland for more than \$5,000,000. Option for cutting rights on another 15,387 acres of timber and planned expansion in that area will bring the total investment to \$10,000,000. Company plans to enlarge the Anderson mill to a capacity of 100,000,000 bd. ft. of lumber a year, employing 300 to 400, during 1948. Rolland G. Watt, formerly manager of Deschutes Lumber Co., will continue as manager of the Anderson operation.

MALTING COMPANY EXPANDING—Miller Malting Co., 5945 Malt Ave., Los Angeles, have started construction of an addition at an estimated cost of \$800,000. This will add capacity of 50,000 tons per year.

NEW PLANT FOR PRINTING INK CORPORATION—International Printing Ink Corp., Ltd., are building a new plant at 707 E. 62nd St., Los Angeles, containing about 21,000 sq. ft. of floor space and new equipment for making printing, lithographing, and aniline ink. Company is a subsidiary of Interchemical Corp.

U. S. SPRING & BUMPER BUILDING—U. S. Spring & Bumper Co., 4951 Alcoa Ave., Los Angeles, are erecting a service building on E. Washington Blvd., to cost \$108,000.

CINCINNATI FIRM BUYS DIVISION OF GENERAL TIRE—Schaible Co., Cincinnati, have acquired the plumbing fixture division of the General Tire & Rubber Co., 707 S. Raymond Ave., Pasadena. Building contains 40,000 sq. ft. of floor space and is valued at \$1,000,000. C. M. Johnson is local manager.

ELECTRIC COMPANY MOVES INTO NEW HOME—Lenkurt Electric Co. have moved from San Francisco to their new plant on County Road, San Carlos, where they are employing 130 workers in the manufacture of telephone and telegraph carrier equipment for stepping up capacities of communication systems by means of electronics. The company has recently taken over the entire production facilities, along with key personnel, of an eastern powdered metal plant, and moved it to the Coast. An important component of the company's own product, the powdered metal will also be manufactured commercially at the San Carlos plant.

CULVER CITY CHEMICAL COMPANY SOLD—American-Marietta Co. have purchased Lac Chemicals, Inc., Culver City, to be their 17th division. Lac Chemicals are engaged in distilling, warehousing and selling industrial alcohol and proprietary solvents from special de-natured alcohol. The plant has a capacity of 2,500,000 wine gallons a year. American-Marietta plan to spend \$250,000 on development and expansion. New equipment will be installed to produce other chemicals and dry ice. Lewis A. Crank will continue as president and general manager.

AEROJET GETS NAVY CONTRACT—Aerojet Engineering Corp. have signed a contract with the U. S. Navy for rocket test facilities. The contract is held jointly with the Ralph M. Parsons Co., Los Angeles, and calls for the design and construction of technical facilities for Army and Navy guided missile and pilotless aircraft test stations. The study will be conducted at the naval air missile test center at Point Mugu.

WESTERN PIPE GETS EAST BAY CONTRACT—East Bay Municipal Utility District, Oakland, have awarded a contract for \$6,000,000 worth of steel pipe to Western Pipe and Steel Co., Consolidated Steel subsidiary. The contract calls for pipe for an additional unit of the second Mokelumne aqueduct and consists of about 32 miles of welded steel pipe, 68 in. in diameter. Some 33,000 tons of steel will be fabricated.

AVIATION MAINTENANCE GETS OVERHAUL CONTRACT—A contract for major overhaul of DC-4 four-engined airplanes for

American Overseas Airlines (subsidiary of American Airlines) has been awarded Aviation Maintenance Corp. It will be the first unit of the nation's fleet of four-engined air liners to receive major overhaul in a commercial base.

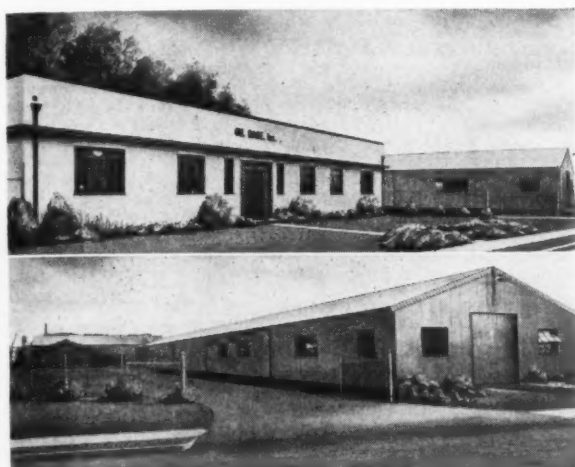
PLASTIC FIRM USES SARAN—American Extruded Products Co., Inc., makers of plastic garden hose, are now using Dow Chemical's Saran to make Tuffthread, a plastic textile material. This is the first Pacific Coast firm to make this material. It will be used in making seat covers, drapes and outside furniture coverings.

PARKER LICENSES TWO LOS ANGELES FIRMS—Parker Appliance Co. have licensed Pacific Screw Products Corp. and Deutsch Co., Los Angeles, to make flared-tube couplings, embodying Parker patents. Parker plans to devote more of their facilities to development and production of other, more specialized products.

BLAW-KNOX GETS LOS ANGELES CONTRACT—Power Piping division of Blaw-Knox Co. have received a contract from the city of Los Angeles for the supply and installation of all piping to be used in three new electrical power generating units of high-pressure, steam turbine type. The piping award amounts to approximately \$1,250,000.

CHEMURGIC CORPORATION MOVES—Chemurgic Corp., manufacturers of fertilizers, have moved their headquarters from Richmond to Turlock. Everett B. Luther is president.

OIL BASE MOVES TO NEW PLANT—Oil Base, Inc., have moved their head offices from Los Angeles to their new plant in Compton, where all facilities have been combined on a newly acquired 4½-acre site for the manufacture, packaging, mixing and shipping of Black



Magic oil base drilling fluid. The plant is situated with access to transportation by rail, truck or water. There are four buildings, including an office, production and storage plant, a premix plant, and a sacking plant is under construction. The main plant is housed in a 12,000-sq. ft. steel building, and contains new grinding and mixing equipment.

WAREHOUSE FOR PAPER COMPANY—Blake, Moffitt & Towne, paper distributors, are planning to build a \$400,000 warehouse, to include divisional offices, at 21st St. between Union and Poplar, in Oakland. The new building will contain over 100,000 sq. ft., and the larger facilities will necessitate a 25 per cent increase in employment.

PUMP PLANT COMPLETED—Jacuzzi Brothers, Inc., have completed their \$2,500,000 pump manufacturing plant on Eastshore Highway, Richmond, where they are employing 300.

CONVEYOR-MAKING FIRM STARTS OPERATIONS—Pacific Engineering & Supply Co., a new San Francisco firm located on Pier 62, are now employing 10 persons in the manufacture of box conveyors. Plant occupies 10,000 sq. ft.

PAPER BOARD PLANT MOVING—Laminated Paper Boards are spending \$200,000 to move into larger quarters at 2665 Jones St., San Francisco, where 52,000 sq. ft. are available. Expansion will create eight new jobs.

FOOD PLANT PLANNED—Lady's Choice Foods have purchased five acres at 10911 Russel St., Oakland, and a 46,000 sq. ft. building, for a food processing plant. They are planning to build additions.

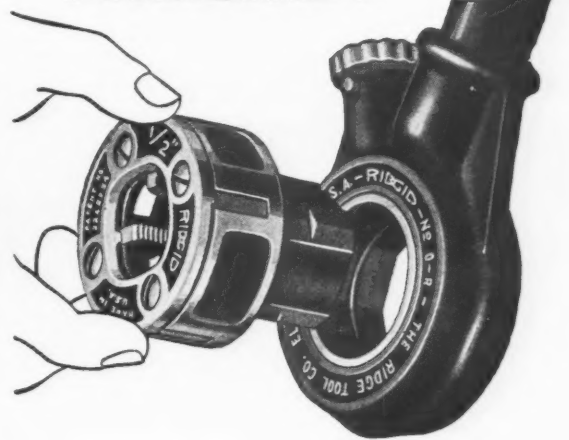
BOTTLING PLANT FOR SAN JOSE—Birdley's Beverages of San Jose have started bottling operations at Campbell Ave. and O'Brien St. in their new \$75,000 plant. They employ eight.

INSECTICIDE FIRM LEASES RICHMOND SITE—R. J. Prentiss & Co. have leased a 10-acre site on Parcel 2, Yard 1, Richmond, from

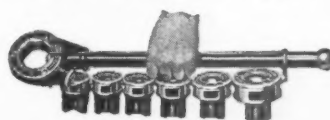
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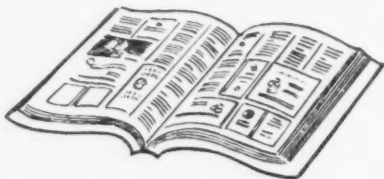
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THE WEST ON ITS WAY

the Parr Corp., where a 30,000 sq. ft. building is available for manufacture of insecticides. They will employ 10 persons at the beginning of operations.

PIPELINE FROM TEXAS OPENED—The 1,000-mile pipeline carrying natural gas from Texas to Southern California has been opened. The gas is distributed by Southern Calif. Gas Co. and the Southern Counties Gas Co.

PRODUCTION BEGINS AT KELITE PLANT—Kelite Products, Inc., have moved into their new plant located on seven acres within a few blocks of Los Angeles' City Hall. The main building for the manufacture of industrial chemicals contains 65,000 sq. ft., and modern facilities for processing and manufacturing industrial cleaning materials. An adjoining plant houses the packaging operations, equipped with new pneumatic machinery. Two other buildings house the company's subsidiary, Tivit Products Co. There is also a large tank farm with facilities for underground and above-ground storage.

LOS ANGELES FIRM CLOSES STEEL DEAL WITH JAPANESE—Yaras & Co., Los Angeles, have contracted to export 20,000 tons of hot-rolled steel sheets and a like amount of galvanized sheets during the coming year to the Japanese Board of Trade. The transaction is estimated by officials to involve \$11,000,000. Yaras will supply coking coal from Canada to fulfill the contract and the Supreme Command, Allied Powers, will purchase fuel oil and one-third of the ore necessary to produce the sheets. The ore will be imported from China. All manufacturing will be done in Japan.

WORK ON POWER PLANT BEGUN—Ground has been broken on the \$2,000,000 steam-electric generating station of the Imperial Irrigation District at El Centro. C. M. Elliott Co. of San Diego is contractor. The main structure will be about 120 ft. long, 90 ft. wide, 60 ft. high, and will be built of reinforced concrete and steel. It will be three stories high and contain 30,000 sq. ft. of floor space.

PLYWOOD COMPANIES BUY TIMBER—U. S. Plywood Corp. and Harbor Plywood Corp. have acquired through purchase and cutting rights more than one billion feet of timber located in Shasta County. This tract is part of the remaining portion of the vast holdings of the Walker family of Minneapolis. A plywood mill will be built, production of which is expected to be taken jointly by the two firms.

COMMISSIONERS APPROVE GENERAL PETROLEUM PLANS—Plans of General Petroleum Corp. to build a tank truck loading facility at their plant in the outer harbor area have been approved by the Oakland Board of Port Commissioners. The improvements, to cost \$70,000, include a 2,500-gal. underground tank to catch spillage from the truck loading rack.

NEW QUARTERS FOR LABORATORIES—Truesdail Laboratories, Inc., formerly located at 520 West Ave. 26, Los Angeles, have completed a move to their own modernized and completely equipped building at the corner of North Figueroa St. and West Ave. 41. The company also purchased an adjacent building for future expansion. The new quarters will permit greatly expanded personnel and a wider range of activities in the scientific research field. Dr. Roger W. Truesdail continues as pres., Dr. C. E. P. Jeffreys is director of research.

WAA OFFERS MARINSHIP BUILDINGS—Two big buildings at the former Marinship shipyard at Sausalito are being offered for sale by War Assets Administration without regard to priorities. Buyers must move the buildings off the property. Offered are the plate and structural shop, which cost \$575,000 and the sub-assembly shop which cost \$440,000. The buildings contain an estimated 3,784 tons of structural steel, 601,000 bd. ft. of lumber, 79,000 sq. ft. of plywood, and 41,000 sq. ft. of steel sash with frames.

PACIFIC ALKALI GETS BORAX MINE—Federal Judge Louis E. Goodman has confirmed the sale of the Western Borax Mine to the owners and operators of Pacific Alkali Co. for \$491,225. The sale included 640 acres in Kern county, and the plant will be sold separately. Western Borax Mine was turned over to a receiver in July, 1945, when its owners consented to a decree dissolving the British-German Borax cartel. This is the first sale of the properties controlled by the cartel.

JOHNSON GETS STOCKTON SHIPBUILDING FIRM—WAA has given final approval of the sale to Walter W. Johnson Co., San Francisco, of all government-owned buildings, docks, building pits, utility installations and other improvements at the former Pollock-Stockton Shipbuilding Co. at Stockton. Sale price approved was \$72,500, the high bid. Firm plans to use the yard for ship breakup to provide scrap metal.

GLIDDEN COMPANY BUILDING—Work is well underway on the Glidden Company's new \$300,000 expansion program at 1300 - 7th St., San Francisco. The program includes a new building and equipment for quantity production of alkyd resins, other synthetic resins and oleo-resinous varnishes. One of the major improvements made possible

by the new equipment is the elimination of open-fire varnish production. The new equipment will "cook" the varnish by indirect heating, with a tremendous increase in safety. Glidden's vice president, A. D. Duncan, calls the new units "one of the first important changes in varnish production in more than 50 years." The plant is scheduled for early completion, but has been held up by construction labor shortage.

AMERICAN POTASH EXPANSION PLANS PROGRESSING—American Potash & Chemical Corp. have announced completion of the first phase of their multi-million dollar expansion program at Searles Lake, 170 miles north of Los Angeles. Already completed are a new \$300,000 research laboratory, a modern office building and a subdivision of 47 homes. Under construction and scheduled for completion in 1948 are a new \$4,500,000 soda ash-borax and a \$2,000,000 power plant expansion.

SAN DIEGO BOAT COMPANY SOLD—Tacoma Boatbuilding Co., Inc., have bought the Harbor Boat & Yacht Co. plant and facilities at San Diego. Property includes 400 ft. of waterfront, oil dock, repair and storage facilities. New dock, marine railway and new machine, electrical and refrigeration shops will be installed.

NEW MANUFACTURING PLANT COMPLETED—V. & E. Manufacturing Co., makers of drafting machines and drawing instruments, have completed their new plant at 766 South Fair Oaks Ave., Pasadena, which houses office, engineering and assembly operations. The manufacturing department, including a well equipped machine shop, is housed in a building adjoining the new structure. The two buildings have a combined floor space of 12,500 sq. ft.

NORTH AMERICAN LEASES DOUGLAS PLANT—North American Aviation, Inc., Los Angeles, have leased five units of the government-owned Douglas Aircraft Co., Inc., manufacturing plant at Long Beach. The lease is for five years at an annual rental of \$226,580. The property included comprises about 26 acres of land, buildings 3, 10, 11, 14, 15 and several temporary buildings, providing about 422,000 sq. ft. of floor space. North American is engaged in production for the Army Air Forces and has been occupying three other units under an interim arrangement. Current employment of 2,240 persons is expected to increase to 4,000 shortly.

FIRST POSTWAR LUXURY SHIP TO SAIL—The maiden voyage of American President Lines' *President Cleveland* was set for Dec. 27, to sail from San Francisco to Hawaii and the Orient. It is the largest merchant vessel ever built on the West Coast and the largest to be built in the U. S. since the *America* was launched in 1939. The ship was built at the Bethlehem-Alameda shipyard in Alameda. It will accommodate 550 passengers and contains almost 300,000 cubic feet of express and refrigerated space. The company is also considering the conversion of two more *Cleveland-Wilson* type liners to luxury status. These vessels, the *General M. C. Meigs* and the *General W. H. Gordon*, now carry 1,500 passengers, mostly in utility accommodations.

SAN DIEGO GAS AND ELECTRIC EXPANDING—San Diego Gas & Electric Co. have announced a \$40,000,000 expansion program to be carried out by 1952. Included are a \$5,000,000 gas line to connect with a northern source, and a 50,000 kw. station to be installed in 1950 at a cost of \$7,500,000. The company is building a 50,000 kw. turbo generator at present at its Silvergate plant, scheduled for early completion.

NEW SAWMILL FOR SMITH RIVER—The Den Bar Lumber Co., a new firm, is reported to have plans for a 100,000-ft.-a-day sawmill at Smith River. Equipment to consist of band and double cutting pony rig.

PABCO EXPANDS EAST—The Paraffine Companies, Inc., San Francisco, have announced plans for the erection of floor-covering plants on the Atlantic Coast as part of their expansion and rehabilitation program.

CLOTHIER LOCATES IN RIVERSIDE—Henry Rosenfeld of California, Inc., dress manufacturers, have announced that Riverside will be the firm's Pacific Coast headquarters, and that they will build a 70,000 sq. ft. plant. The program will provide employment for 600 workers in cutting, piece-work, and shipping. Sub-offices will be maintained in San Bernardino and Bakersfield. Material valued at over \$500,000 will be in stock at Riverside warehouses, and delivery will be made by air. At present finished goods are sent to main New York warehouses where they are stored pending wholesale buying.

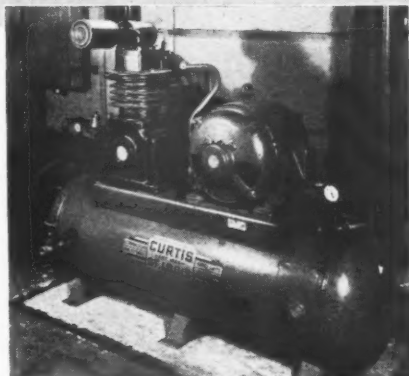
RYAN GETS GUIDED MISSILE CONTRACT—Ryan Aeronautical Co., San Diego, have received from the U. S. Air Force an increase of \$1,070,000 in contracts for development and manufacture of a new type controlled weapon. Though details of the guided missile are secret, Ryan engineers have described it as one of the most compact weapons of its type ever designed, and with a "built-in brain capable of doing its own thinking" once it has been launched. Flight testing is being done at the Alamogordo Air Base in New Mexico.

ANOTHER STEEL PRODUCER—Century Steel Corp., with plans for a mill of 3,000 tons of merchant bars monthly to be located in the Los Angeles area, has applied to the SEC for authority to sell 4,000 shares

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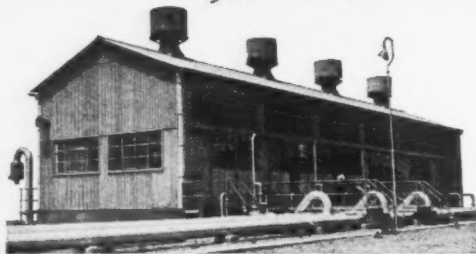
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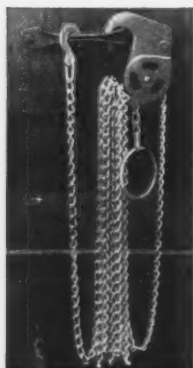
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of Class B common stock at \$100 par, while 1,000 Class A shares not registered with SEC will be held by the organizers of the concern. Lewis B. Kean, formerly with U. S. Steel and lately sales manager for Judson Steel Co., Emeryville, Calif., is president; Lewis B. Kean, Jr., vice-pres. and secretary; and Mason E. Miles, formerly Pacific Coast office manager for Allegheny-Ludlum, treasurer.



STAUFFER COMPLETES LABORATORY—Stauffer Chemical Company have completed their new \$125,000 agricultural research laboratory 35 miles south of San Francisco near Los Altos. It was built for testing and proving new organic chemical products now being marketed, and studying the physical qualities of sprays and dusts under conditions which will closely simulate field conditions. Equipment and facilities include custom-built laboratory furniture, complete laboratory equipment, special equipment for compounding experimental quantities of fungicide and insecticide spray formulations. Facilities are located on six acres of land upon which plantings of vegetables and commercial varieties of fruits and nuts are grown for testing purposes. Plant includes administration building, a second building containing two spraying and dusting labs, and greenhouses. Dr. C. L. Arnold, director of research and development for the firm, will be in charge of over-all operations, and Dr. Charles O. Persing, director of agricultural research, will be in active charge of the laboratory.

OROWEAT ACQUIRES BAKERY—Oroweat Baking Co., San Francisco, has acquired the entire facilities of the Peoples Baking Co. of San Francisco and Oakland, one of the Bay Area's oldest bakeries. This will up Oroweat's facilities to a capacity of 100,000 lb. of bread daily. The transaction involved \$500,000.

ALUMINUM EQUIPMENT HELD FOR GOVERNMENT—Sale of \$6,000,000 worth of aluminum reduction plant equipment from the dismantled Alcoa war plant at Los Angeles, which War Assets Administration has offered for sale, has been frozen for possible government use. The equipment has been turned over to the temporary control of the Joint Army-Navy Machine Tool Program for survey and screening as government stockpile material.

STINSON ESTABLISHES OAKLAND OFFICE—Stinson Division of Consolidated Vultee Aircraft Corp. has established in Oakland its regional sales headquarters to serve Calif., Ore., Wash., Idaho, Mont., Nev., Utah, Ariz. and half of Wyo. Headquarters were formerly in Los Angeles. Robert H. Swackhamer is in charge of the Oakland office.

TAKES LEASE AT AIRPORT—Dade Brothers, Inc., aviation export packaging firm, has leased 21,000 sq. ft. at Oakland Airport to serve as its Pacific Coast base. Operations will be headed by Robert E. Dade, vice-pres., who announced plans for a large-scale program, with Oakland as the point serving the company's export market to the Pacific Ocean and South American areas.

"PACKAGED" POWER PLANTS MADE AT SUNNYVALE—Latest addition to the line of products Westinghouse Electric Corp. is making at its Sunnyvale plant is the 5,000-kilowatt unit power plant, the first four of which are destined for Mexico. Company will make 10 such "packaged" units, compact and standardized, and completely self-contained power plants.

MEAT PROCESSING PLANT BEGUN—Ed Heuck Co. is erecting a new \$350,000 plant at the corner of Beach and Jones St., San Francisco, for meat processing. Plant will contain 65,000 sq. ft.

FABRIMETALS BEGINS OPERATIONS—New plant in Sausalito is Fabrimetals, Inc., 1760 Bridgeway, makers of brandy stills, heat exchangers, condensers, dehydrators, evaporators and extractors. Company will employ 50 at its \$100,000 plant.

LABORATORY CONSTRUCTION BEGUN—Western Waxed Paper Co., a division of Crown-Zellerbach, San Leandro, has started construction on its laboratory, the first unit of its new several hundred thousand sq. ft. plant.

FURNITURE PLANT FOR PORT CHICAGO—Atlas Frame Co., Port Chicago, has leased a three-acre site and will construct a \$50,000 plant for making furniture and fencing.

MERCURY SALTS CORPORATION—Precision Chemical Co. is a new corporation located at 407 Sansome St., San Francisco, where it will make mercury salts. Plant occupies 20,000 sq. ft. and will employ about 10 persons.

NEW PLANT SOLD—Mission Appliance Corp., Los Angeles, has sold its 11-acre tract and new factory building at Crenshaw and El Segundo Blvds., to Prudential Insurance Co. of America for \$616,000. The corporation will lease the premises for 35 years, and plans later to dispose of its plants on McKinley and Stanford avenues.

WIRE PRODUCTS COMPANY BEGINS PRODUCTION—Boston Wire Co., 1421 S. Main St., Los Angeles, has begun production of wire products such as bakery equipment, refrigerator, stove, and display racks. Lyle Eade is pres.

MAKING DISH WASHERS—Caldwell-Noel Corp., 218 Boyd St., Los Angeles, has begun manufacture of dish washers which are installed on sink swing spouts.

OIL BASE TO BUILD NEW PLANT—Oil Base, Inc., is planning to build a 12,000 sq. ft. building at 130 E. Oris St., Compton, to make oil well drilling fluid under the trade name of "Black Magic." George L. Miller is pres.

NEW ORANGE DRINK—Tru-Ade Bottling Co. of Southern Calif., 3248 Union Pacific Ave., Los Angeles, has begun making and bottling a non-carbonated pasteurized orange drink called "Tru-Ade." Victor R. Skogland is pres., Gerald R. Knudson, treas.

NEW LAB AT PASADENA—Prosthetic Research Laboratories, 25 N. Michigan Ave., Pasadena, is making all types of medical prostheses, artificial appliances, and devices in rigid, semi-rigid, and flexible materials. In this new laboratory 8,000 sq. ft. of floor space is available. J. F. Kelley is chief engineer and J. E. Sellers consulting engineer.

MACHINERY JOBBERS TO MAKE STREET SWEEPERS—Brown-Bevis Equipment Co., 4900 Santa Fe Ave., Los Angeles, construction, mining and industrial machinery jobbers, have begun making mechanical street sweepers under the trade name of "Wayne Motor Sweepers."

PACIFIC PUMPS EXPANDING—Pacific Pumps, Inc., 5715 Bickett St., Huntington Park, is planning expansion to the tune of \$110,000. This will include an addition of 11,550 sq. ft. and considerable new equipment for making centrifugal pumps for oil refineries and industrial and agricultural use, and deep well oil pumps.

VALVE MANUFACTURER MOVES—Hydra-Control Co. has moved to 2961 E. Colorado Blvd., Pasadena, a 28,500 sq. ft. plant where company makes hydraulic valves for aircraft.

OCCUPY NEW BUILDING—Maggio Bros., vegetable processors, have moved into their new 25,000 sq. ft. building at 2801 E. Pico Blvd., Los Angeles.

NEW PLANT FOR MACHINE MANUFACTURER—Ray Manufacturing Co., Inc., is now located at 60 E. Orange Grove Ave., Burbank, where 13,000 sq. ft. of floor space is used for making screw machine products and job machine work.

NEW ADDRESS FOR JAMES H. KNAPP CO.—James H. Knapp Co. is now at 841 E. 4th St., Los Angeles, where they are making drying ovens, salt bath furnaces in a 10,000-sq. ft. plant.

INDUSTRIAL CHEMICAL COMPANY MOVES—Industrial Chemical Co. has moved to 12130 S. Main St., Los Angeles, where about 10,000 sq. ft. are available for manufacture of boiler compounds.

TRAILER COMPANY PRODUCING—Airstream Trailer Co. is producing coach trailers at its 7,800-sq. ft. plant at 1755 N. Main St., Los Angeles.

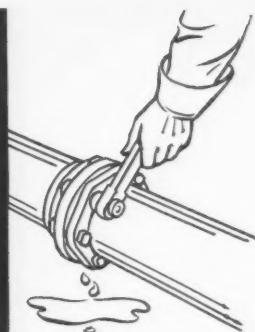
APPLIANCE COMPANY MAKING BALL PEN—Allied Appliance Co. has begun making a ball-bearing ink pencil at its 6,500-sq. ft. plant at 108 W. Alameda St., Burbank. Company also makes screw machine products, aircraft and automotive fittings and specialty items.

TRIANGLE PUBLICATIONS EXPANDS—Triangle Publications, Inc., 1540 N. Vermont Ave., Los Angeles, plans to construct a 6,500-sq. ft. addition.

U. S. RUBBER BUYS LAND—U. S. Rubber Co. has purchased 640 acres of land near Lancaster for national tire testing headquarters.

WINERY NEARS COMPLETION—DiGiorgio Fruit Corp. expects early completion of the second unit of its new winery in DiGiorgio, which will have a production capacity of 4,500,000 gallons. The first unit, with 5,000,000-gallon capacity, was completed in time for the 1946 crush.

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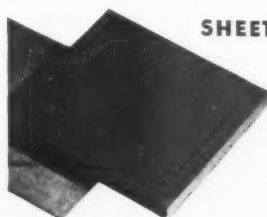


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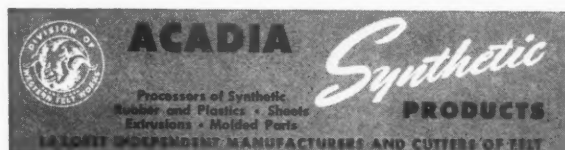
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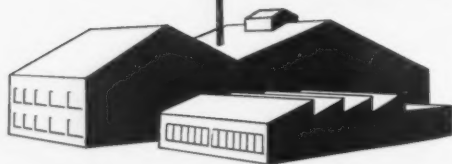
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FIREBAUGH MOTORS EXPECTS 1,000-A-MONTH-PRODUCTION—Firebaugh Motors, Inc., San Diego, makers of a new type three-wheel half-ton delivery truck, expects production at the rate of 1,000 a month by December. Factory capacity of 3,000 a month is expected to be reached by the end of 1948. Company reports a \$15,000,000 backlog of orders on its books.

RICHFIELD TO DRILL AT RUBBER PLANT SITE—U. S. Rubber Co. has signed an agreement permitting Richfield Oil Corp. to drill for oil at the site of its tire factory at 5675 Anaheim-Telegraph Road, Los Angeles. Since slant drilling will be employed, the tire plant will not be disturbed.

GAS COMPANY TO USE 30-INCH STEEL PIPE—Consolidated Steel Corp.'s 30-inch diameter, expanded steel pipe will be used by Southern Counties Gas Co. in the installation of two new-type gas storage units at San Luis Obispo and Paso Robles. The tanks will be laid parallel underground and manifolded together. Each storage unit will be of approximately 250,000 cu. ft. capacity.

SPACE FOR INDUSTRY AT VALLEJO—Vallejo Chambers of Commerce and the city council report space available in the industrial district for new light industries. Space and buildings for lease have been acquired by the chambers and council from the Navy, and three small firms have already started manufacturing operations there. Of the original 130,000 sq. ft., 102,000 sq. ft. are still available.

NEW MEAT PACKING PLANT IN OAKLAND—John Morrell & Co., fifth largest meat packing firm in the country, is building a \$470,000 branch building between Second and Third streets on Jackson St., in Oakland, to replace present facilities now located about two blocks away. The one-story building will contain 27,500 sq. ft. of floor space.

NEW INDUSTRIAL AREA IN MARIN—Development of a new industrial and recreational area of more than 1,300 acres on the eastern border of San Rafael has been started by the Marin Canalways and Development Co. Plans call for a deep water canal 400 ft. wide and 2½ miles long, with a 1,500-ft. turning basin and clearance for vessels drawing 30 ft., bisecting the big tract. A spur track of the Western Pacific is planned to provide rail transportation. The project is not expected to be completed for another four or five years.

BETHLEHEM COMPLETING ELECTRIC STEEL FURNACE—Bethlehem Pacific Coast Steel Corp.'s new 50-ton electric steel making furnace is nearing completion at the company's Los Angeles plant. It is the largest and most modern of its type on the West Coast, and will virtually double the plant's steel producing capacity. Also installed are heating facilities for larger steel ingots which will be produced, and a new 32-inch blooming mill. These facilities are expected to be in production by the first of the year.

HELICOPTERS FOR SAN FRANCISCO—The San Francisco Bay Area has its first commercially operated helicopters, two Bell utility models for Helicopter Services of California, to be based at Oakland Airport. They will be used in patrolling electric power and pipe lines, crop dusting, and other similar enterprises.

FLOTATION PLANT IN OPERATION—The new 100-ton concentration flotation plant of the New Sutherland Divide Mining Co., near Shoshone, Inyo County, has begun operation. For over two years the company has been doing rehabilitation and development work.

ROOT BEER PLANT OPENED—Charles E. Hires Co. has opened a root beer bottling plant at 15 E. Verdugo Ave., Burbank, to service the San Fernando Valley. Plant has a capacity of 300 cases per hour.

"FOG BUSTER" FOR MONTEREY—A \$500,000 electronic fog disperser is to be constructed at the Monterey Airport, to be completed by next February. Underlying principle of the "fog buster" is the use of a "pulse-energy panel" which stores electrical energy. That energy is converted into sound vibrations through a special electronic tube. The sound vibrations can raise the normal atmospheric pressure from 14 lb. per sq. in. to 21, and as a consequence fog will disperse. Alfred Vang, pres. of the Vang Process Developing Co., New York, is the inventor.

SMALL RADAR UNIT FOR PLANES—Donald K. Allison, Los Angeles electronics engineer, has perfected a new airborne radar unit weighing only 58 lb., designed for private and commercial planes. It has been demonstrated in a Southwest Airways DC-3. The development is installed in the nose of the ship and relays a visual picture to a screen in the cockpit, giving the pilot a view of all hazards in the line of flight. It weighs approximately one-third as much as the lightest wartime airborne unit.

CLOTHING FIRM TO EXPAND—Nob Hill of California, San Francisco manufacturers of women's suits and coats, is doubling floor space and production in an expansion of facilities at 731 Market St. Employment will be increased to 75 persons.

COLORADO

FIRESTONE BUILDING NEARLY DONE—Firestone Tire & Rubber Company's new building on Brighton Blvd., between 43d and 44th Sts., Denver, is nearing completion, and will become the company's distribution center for the Rocky Mountain Empire. It contains 90,000 sq. ft. of floor space and will house the district sales office, and a large tire retreading and repair depot. The larger portion of the building will be devoted to a warehouse.

PRINTING PLANT BEGUN—A. B. Hirschfeld Press have begun work on their new \$150,000 printing plant located on Speer Blvd., between 7th and Acoma St., Denver.

TIMKEN BUILDING SPRINGS PLANT—Timken Roller Bearing Co. have purchased the eight-acre site and taken over all construction on the new \$150,000 rock bit plant at Colorado Springs. The plant was originally scheduled to be built by the local C. of C. and leased to the company but it was later decided that the company would build the plant. Manager of the new unit is Frank M. Givin, general foreman of the company's Mount Vernon plant. A daily output of some 10,000 rock bits a day has been scheduled and about 75 persons will be employed at the start.

MINING EQUIPMENT FIRM EXPANDS—Morse Bros. Machinery Co., 2900 Broadway, Denver, have purchased the Walker Manufacturing Co., 2156 - 15th St., Denver, for the purpose of converting it into a modern foundry and machine shop. A machine shop, pattern shop and storage space are also being added to the Morse plant. Raymond Grimes will be in charge of the new installation.

IDAHO

TOY-MAKING STARTED AT COEUR d'ALENE—Loren Weeks and Ray Fawcett, Coeur d'Alene, have begun manufacture of a line of toys called Slat-o-Slot, a construction toy.

NEVADA

SMELTER PLANNED NEAR BEATTY—Daniels Smelting Co. are planning early construction of a smelter of 200 tons daily capacity, of the oil-fueled reverberatory type. Location is on the main highway extending from Reno to Las Vegas.

EAGLE-PICHER COMPLETES PLANT—Eagle-Picher Co. have completed a new plant at Clark equipped with the latest processes to produce tailor-made grades of diatomaceous earth. From the earth the company will produce a new product called celatom, to be used in high temperature insulation, as a filter-aid for the beverage industry and as a carrier for fertilizers and insecticides. Diatomaceous earth is very light, porous and has high absorptive qualities.

NEW MILLING EQUIPMENT AT CLIFTON—Directors of the Nevada Equity Mining Co. have approved plans for installing milling equipment in the Clifton mill at an early date. The mill will be designed to enable treatment of custom ore.

IMPERIAL LEAD BUYS PROPERTY—The Imperial Lead Mines, Inc., have purchased the properties of the Union Lead Mining & Smelting Co., and have started building a flotation mill designed to treat from 150 to 200 tons per day. In charge for Imperial as general manager is Paul W. Keating.

RICH ORE FOUND—A strike of rich gold ore has been made south of the Florence shaft at Goldfield by the Newmont Mining Corp., at a depth of 385 feet. Clyde Terrell, editor of the Tonopah Times-Bonanza, indicates that this major strike "may develop into something sensational. It is located in virgin territory and the character of the ore indicates permanency. Just what the future will bring in the way of a general mining revival in this part of Nevada is . . . speculation, but it can hardly be anything else than of tremendous importance, and may spread to all parts of the state."

SODIUM SULPHATE PLANT PLANNED—It is reported that the Florida Pulp and Paper Co. are building a plant for the manufacture of sodium sulphate for use as paper bleach and digestant, on Rhodes Marsh, south of Mina on the Tonopah-Reno highway. The Nevada Chemical Co., former subsidiary of the company, are building a road and preparing for construction of kilns and buildings. Planned capacity of the plant is said to be four or five carloads of soda products daily, or about 200 tons.

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THE WEST ON ITS WAY

TOWN OF FLORISTON SOLD—Crown-Zellerbach Corp. have sold the townsite of Floriston to Preston L. Wright, San Francisco, who is offering the property for sale. Included in the buildings, former site of Crown-Willamette Co.'s paper mill town, are 50 cottages, a 60-room hotel, store building and small hospital on a 133-acre tract. Town is located about 20 miles west of Reno.

NEW MEXICO

WAA OFFERS CARBON BLACK PLANT—War Assets Administration is offering for sale the carbon black plant at Monument, now operated on an interim lease by Charles Eneu Johnson & Co. Plant was designed for a capacity of 15,200,000 lb. of carbon black annually and consists of a gas desulphurization plant, gas supply line, carbon black plant, two burner units with 40 burner houses each, two incomplete burner units, storage and miscellaneous buildings and 14 dwellings. Plant may be purchased or leased in its entirety for operation at its present site or for dismantling and removal from the site.

OREGON

INSTRUMENT REPAIR SHOP OPENED—A navigational and optical instrument repair shop has been opened by Harold W. Abbot at 7024 N. E. Hoyt St., Portland. He is a specialist in instrument work and was formerly employed by Bausch & Lomb and Eastman Kodak Co.

ALUMA-LOCK CORP. GETS BIG ORDER—Aluma-Lock Corp., one of Portland's first aluminum fabricating plants, have announced their first order of 10,000 squares of interlocking aluminum shingles. The order was placed by a Portland home-building firm. The shingles, with four interlocking sides, are the invention of L. J. Korter, president. Production will be done in Portland using Alcoa aluminum. Other officers of the new company are Victor Nielsen, vice-pres., and Garthe Brown, sec.-treas.

LEATHER COMPANY STARTS OPERATIONS—The Frontier Leather Co. have started tanning operations in their new \$75,000 plant at Sherwood. This is the only custom tannery in the Northwest.

SWAN ISLAND INDUSTRIAL CENTER—Of the 34 buildings initially offered for lease by WAA at Swan Island only six are still available, the Portland C. of C. reports. Among those whose bids for buildings were accepted are the Andersen Forest Products Co., Barton-Haynes & Co., Evergreen Chemical & Soap Co., Gilmore Steel Products Co., The Hyster Co., Ireland Industries, Perfect Products Co., Woodbury & Co., and Zidell Supply Co.

TWO SHIPBREAKING FIRMS ORGANIZE IN PORTLAND—Two new shipbreaking companies have organized for operation in Portland. Barde Steel Co., Alaska Junk Co., and Page & Page have formed Marine Railway, Inc., and purchased the marine railway and equipment owned by the government at the former Commercial Iron Works for \$26,200. Originally these facilities cost around \$2,750,000. The company estimates 10 vessels a month will be dismantled, employing some 500 men. . . . Consolidated Builders, Inc., have taken over the facilities formerly operated by Kaiser Co., Inc., on Swan Island. The company is controlled by the contractors responsible for the construction of Coulee Dam and who operated the Oregon Shipbuilding Corp. under Henry J. Kaiser. Albert Bauer, general manager of Kaiser ship repair activities, will continue as manager of the scrapping operation.

OREGON STATE PLANNING CHARCOAL RESEARCH—Oregon State College, Corvallis, the Bonneville Power Administration and private industry are forming plans for a forest products laboratory at the college, to include a pilot plant for producing charcoal from wood waste. Sawdust will be used primarily. Eastern firms have already indicated interest in developments in this area if the charcoal proves practical.

GENERAL PETROLEUM TO BUILD DOCK—General Petroleum Corp. are building a 570x30-ft. dock at their Linnton terminal in Portland. It will replace one destroyed by fire in 1946, and will serve for unloading and loading tankers and barges. General Construction Co. will build it at a cost of \$106,000. Piping and electrical work is expected to cost around \$57,000.

FIVE FIRMS SEEK SPRINGFIELD PLANT—At least five firms have indicated interest in purchasing the Willamette Wood Chemical Co. plant at Springfield, the \$3,000,000 wartime plant to produce ethyl alcohol from wood waste, now in the hands of RFC. Anheuser Busch Co., St. Louis, had expressed interest earlier. The other four firms, also from outside Oregon, have indicated intentions of operating the plant to make the ethyl alcohol, the original purpose of the plant. The plant has never operated successfully on a volume basis. War Assets Administration will dispose of it when arrangements for termination of lease with Willamette Wood Chemical Co. become final.

SAWMILL TO BE REBUILT—The White Pine Lumber Co., Lakeview, have announced plans to rebuild their sawmill and make additions to their planing mill and box factory. A re-saw unit will be added to the mill and the pond enlarged. Construction is to start in the spring.

THE DALLES LUMBER COMPANY TO REBUILD—The Dalles Lumber Co. have made plans to replace their sawmill, destroyed by fire, to be ready for operating by April 1. Estimated cost of new mill and machinery is \$75,000.

LSTs CONVERTED TO FLOATING ICEBOXES—Willamette Iron & Steel Co., Portland, are converting two LST vessels, designed for war service, into "floating iceboxes" for the Columbia River Packers' Association, which will use them to pick up and store tuna at sea. Each vessel will have cold storage space 250x30x14 ft., divided into four compartments. Cost of converting is estimated at \$250,000 each.

NEW MILL PLANNED—The Williams Lumber Co. will rebuild their sawmill in the Tolo District near Gold Hill, which was recently destroyed by fire. Mill had a capacity of 22,000 ft. of pine lumber daily.

BORDEN PLANT EXPANSION PLANNED—Borden Milk Co. have announced plans for a \$300,000 expansion program at their milk condensary at Albany. First phase of the three-year program is to modernize the receiving room on the main floor and construct additional can storage space on the second floor, doubling capacity. Contract has been let to Claude Buerge, Albany.

COLD STORAGE PLANT FOR MEDFORD—Rogue River Orchards Co. have announced plans to build a 50x124-ft. cold storage plant at 1311 N. Central, Medford, at an estimated cost of \$75,000 to \$80,000.

MILLION DOLLAR LUMBER DOCK PERMIT ISSUED—A permit for \$1,830,852 for construction of a new lumber dock at 2500 N. W. Front Ave., Portland, has been issued to the commissioner of public docks. The General Construction Co. holds the contract. When completed, the present dock will be extended some 600 ft. and will provide storage space for 30,000,000 ft. of lumber.

PLYWOOD PLANT PLANNED FOR PORTLAND—The Portland Plywood Corp. have taken first steps toward possible construction of a plywood plant in Portland. The company is comprised of George Murphy and associates of the Portland Spar Co. It has been indicated that the new plant will be erected on the Spar Co.'s site at the foot of S. W. Mill St., adjacent to the Pacific Power & Light Co.'s steam plant.

TWO NEW SAWMILLS BEING BUILT—Two new sawmills, one with an estimated daily capacity of over 75,000 ft., are now being built in the North Santiam canyon. The larger is a partnership of Amandus Frank of the Frank Lumber Co., Mill City, and Ted Freres of Stayton. The smaller unit, a salvage producer on Monument peak, is being added to the Oregon Pulp and Paper Co.'s mill and will produce about 20,000 ft. daily.

WHOLESALE GROCERY BUILDS AT CORVALLIS—Hudson-Duncan, wholesale grocers, have plans for a \$100,000 remodeling and expansion program at Corvallis. Work is to start shortly. When completed the warehouse will be the largest in the state outside Portland.

ZIDELL MACHINERY COMPANY TO DISPOSE OF SCRAP—Consolidated Builders, Inc., Kaiser-managed ship scrapping firm at Swan Island, Portland, will dispose of its scrap through Zidell Machinery & Supply Co., Portland, who have already set up a sales organization at Swan Island. Consolidated is breaking up 16 LSTs purchased from the Maritime Commission. About 25,000 tons of scrap steel will be taken from them.

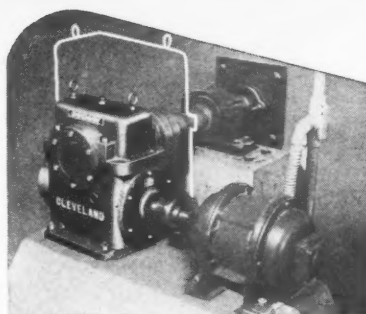
LUMBERMEN BUY WESTERN COOPERAGE—A group of Oregon lumbermen and lumber companies have purchased the manufacturing plant of Western Cooperage Co. in Portland, and its warehouses and assembly plants in Seattle, San Francisco, Fresno and Los Angeles. The Portland plant makes barrel staves and heads and box covers. No sale price was announced. The firm will operate under the name of Western Cooperage, Inc. Officers are Coleman H. Wheeler, pres.; Max D. Tuck, vice-pres.; H. F. Chaney, sec.-treas.

NEW LUMBER COMPANY PLANNED FOR MEDFORD—White City Lumber Co., a newly incorporated firm, has started building a lumber manufacturing plant in the old Camp White site near Medford. Equipment includes a dry kiln, planer equipment, sorting chains, moulding machines, and a sash and frame plant. Initial planned capacity is 150,000 bd. ft. a day.

CANVAS PRODUCTS PLANT REMODELED—Hirsch-Weis Canvas Products Co. are remodeling a two-story building at 3131 N. E. Sandy Blvd., Portland, for use as a manufacturing plant for canvas products. Total investment is estimated at \$100,000.

UTAH

\$5,000,000 REFINERY AT SALT LAKE CITY—Plans for immediate construction in the Salt Lake City area of a refinery unit to cost more

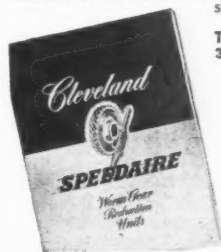


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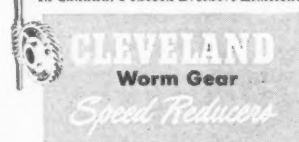
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THE WEST ON ITS WAY

than \$5,000,000, as the initial step of a long-range refinery program to serve the Intermountain region, has been announced by Standard of California. Construction will be rushed through, with completion scheduled within the next year. The initial installation will include crude oil distillation and other facilities for handling and processing crude into a limited number of products, including gasoline, heating oils and fuel oils. Design capacity is 25,000 bbls. of crude daily, although it is expected operations will start on a lesser scale. The unit will be built by the Bechtel Corp.

ARMSTRONG FURNACE COMPANY TO BUILD—Armstrong Furnace Co., Columbus, Ohio, are considering the construction of a \$2,000,000 furnace manufacturing plant in Utah, to employ 600 persons. The decision to build, said Herbert G. Hays, chief engineer, will depend on markets and the availability of raw materials, particularly steel and cast iron. He plans to confer with Geneva Steel Co.

PIPE AND FITTING PLANT SLATED—Lennox Furnace Co., owned by D. W. Norris family interests, who also own the Armstrong Furnace Co., have announced plans to open a pipe and pipe fitting manufacturing plant in Salt Lake City. If they are unable to lease facilities of a local war plant the company will build a \$125,000 building.

UTAH CONSTRUCTION COMPANY TO BUILD HOMES—Another \$1,210,000 contract for the construction of 120 homes has been awarded the Utah Construction Co. by Geneva Steel Co. in Dragoon. Each home will have three bedrooms, living room, kitchen with dining space, bathroom and utility room, and will be equipped with electric stove, water heater, refrigerator and oil furnace.

STORAGE BATTERY PLANT AT OGDEN—Solar Corp., a subsidiary of Gamble-Skogmo, Inc., Minneapolis, have announced plans to build a \$225,000 storage battery manufacturing plant at Ogden. Contract for construction has been awarded to a Minneapolis firm, and it is scheduled for completion May 1. The plant will be an Intermountain distributing auxiliary of the Gamble-Skogmo plant now nearing completion at Reeves Ave. and 29th St., and will be built adjacent to this plant. It will employ 60 persons.

WASHINGTON

RAILROAD TO EXPAND OIL FACILITIES—Spokane, Portland and Seattle Railroad have announced plans to expand and modernize oil recovery facilities at Vancouver, Wash., at an estimated cost of \$100,000. Plans include construction of three buildings and six underground storage tanks.

BEMIS BAG TO MOVE IN MAY—Removal of the Bemis Paper Bag Co. plant from St. Helens, Ore., to Vancouver, Wash., has been set for May 1, when their new plant will be completed. Construction of the Vancouver plant is scheduled to get underway immediately.

NORTH COAST BUS SOLD TO GREYHOUND—Puget Sound Power & Light Co. have completed negotiations for the sale of their North Coast bus lines to the Greyhound Corp., at a price exceeding \$3,000,000. The lines operate between Portland, Ore., and Vancouver, B. C. Sale of the bus lines is regarded locally as a definite step preparatory to Puget's sale of its electric properties.

SOUNDVIEW PULP COMPANY ACQUIRES VANCOUVER FIRM—Soundview Pulp Co., Everett, has acquired control of the Elk River Timber Co., Ltd., Vancouver, B. C. The company announced it had purchased 4,131 of the 7,500 outstanding shares at a total cost of \$1,008,511.

FERTILIZER FIRM PLANS ELLENSBURG BRANCH—Charles H. Lilly Co., Seattle, makers of fertilizer products, will establish a depot and mixing plant at Ellensburg in the old Northern Pacific railroad roundhouse as soon as alterations are completed. At peak season the new plant will employ between 12 and 15 persons. A. R. Elder will be manager.

PACIFIC POWER & LIGHT TO INSTALL GENERATOR—Pacific Power & Light Co. will install a second 50,000 kw. generator at Ariel Dam, at an estimated cost of \$3,000,000.

NEW BOTTLING WORKS AT YAKIMA—Pepsi-Cola Bottling Co. at Yakima are planning construction of a \$75,000 bottling plant at 1017 S. First St. Edmund P. Erwen is contractor. The firm's present location is 920 Fenton.

RICHFIELD TO BUY AT LONGVIEW—The Richfield Oil Co. have leased more than two acres from the Port of Longview where they will install a complete marine plant for distribution of their fuel oils, lubricating oils and gasolines. The plant will be built on the northwest corner of the port property, adjacent to Oregon Way. Planned are at least six large storage tanks, a warehouse, office and pumphouse, plus con-

necting pipelines, pipelines to and from the port dock, loading racks for railroad tank cars, and a spur track. Estimated cost is \$100,000. **MEAT PLANT OPENED**—A new meat packing plant has been established in Oroville by Roy Mooney. The plant is supplied with modern equipment for the handling of all kinds of livestock.

HONEY PACKERS LOCATE IN TACOMA—The Sioux Honey Association is establishing a Northwest branch plant in Tacoma in collaboration with the Silver Bow honey farm and packing plant. Consolidation of the firms will allow the Sioux Honey Association to use the local facilities at Center St.

TACOMA FIRM BUYS OLYMPIA MILL—Buchanan Lumber Co., Tacoma, have purchased the Olympia Oil & Wood Products Co.'s sawmill on West Bay Drive, Tacoma. The sale involved only the sawmill and did not affect other phases of the Olympia firm's business. Head of Buchanan Lumber Co. is Don Buchanan, elder son of one of the original partners.

TWO WILLAPA MILLS RESUME OPERATIONS—Two long-idle Willapa Harbor lumber mills have resumed operations under new management, employing about 50 men. They are the plant formerly known as the Raymond Hardwood Co., now called Mill B of the Twin Harbors Lumber Co., Raymond; and the Port Lumber Co., Willapa Harbor.

FORD PLANS HUGE DEPOT AT SEATTLE—Ford Motor Co. have announced plans for a huge, streamlined parts distribution depot at Seattle. Some \$250,000,000 has been set aside for this project and the company's new assembly plant in Los Angeles.

MILK PROCESSING PLANT PLANNED—The Whatcom County Dairy Association are completing plans for a new and modern plant for processing milk and making ice cream, cottage cheese and dairy products. The plant will be located on Cornwall Ave., Bellingham.

KRAFT INSTALLED AT CHEHALIS—Kraft Foods Co. now have their plant in operation at Chehalis for production of cottage cheese, cheese spreads and other dairy products. The modern dairy plant was built by the Lewis-Pacific Dairyman's Association for lease to Kraft. Co-op members supply the milk.

RAYONIER BUYS POLSON TIMBER LANDS—Rayonier, Inc., largest producer of special types of wood pulp for the manufacture of rayon and plastics, have completed negotiations for the purchase of the Polson Logging Co. timber lands and logging facilities on the Olympic Peninsula. Though the purchase price was not announced, it has been estimated at around \$15,000,000. Included in the properties are over 50,000 acres of virgin timber in Jefferson, Clallam and Grays Harbor Counties, and 70,000 acres of "reproduction" land.

PLYWOOD PLANT AT KALAMA—Columbia Veneer Corp. are planning to build a veneer and plywood plant at Kalama at an estimated cost of \$150,000. The mill will be on property belonging to the Port of Kalama, occupying 17 acres. Construction is to start immediately.

ALCOA TO BUILD AT VANCOUVER—Aluminum Co. of America have plans for a new West Coast plant for making aluminum rod, wire and electrical transmission cable, to be located probably near their smelting mill at Vancouver. Plans are dependent on assurances of adequate power for operating the smelting plant at present or increased production levels. Some of the firm's present equipment for making wire, rod and cable will be transferred to the new plant from other locations, and much new equipment will be installed.

THREE BIDS ON MAGNESIUM PLANT AT SPOKANE—The Spokane C. of C. reports three bids have been submitted on the magnesium plant at Spokane. They are Electrometallurgical Co., Niagara Falls, N. Y.; Chromium Mining and Smelting, Montreal, Canada; and the Pittsburgh Metallurgical Co., Niagara Falls. Bonneville Power Administration has indicated it would have available 6,000 kw. Feb. 15 and another 6,000 on April 15 for the successful bidder.

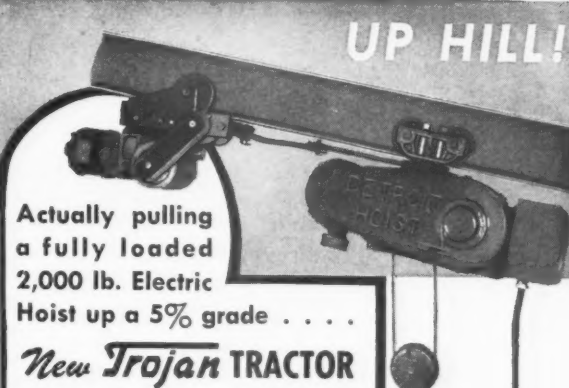
WYOMING

SULPHUR MINE GETS INTO OPERATION—Star Valley Mines, Inc., are investing some \$75,000 in their operations near Star Valley's sulphur springs, and plan to handle about 150 tons of sulphur a day when in full scale production. The sulphur will be trucked to a railroad at Ririe, Idaho, and will be processed for use as fertilizer.

RECLAIMED SAND PLANT—The Utah Sand & Gravel Co. are building a plant at Evanston to reclaim sand and chips from tailings left from the crushing of ballast for the Union Pacific railroad. The sand will be used in concrete to line the new \$8,000,000 U. P. Aspen tunnel east of Evanston.

GRANITE DEPOSITS MAY BE WORKED—Development of granite deposits in the Rawhide Buttes area of Niobrara County is being considered by the Jay Em Stone and Gem Corp. and Lusk businessmen. An industrial engineer has reported the granite supply is available in large enough pieces to work economically.

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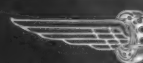
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NEWS ABOUT THOSE WHO DISTRIBUTE AND
SELL INDUSTRIAL EQUIPMENT AND MATERIALS

Harold T. Stapleton has been selected as Pacific regional dealer supervisor for the Allis Chalmers Co.

Fred Clark has been assigned to the Northern California territory as sales representative of Tubbs Cordage Company. He replaces Dick Hughes, who recently took over his new duties as San Francisco district marine sales and traffic representative.

The Rapids-Standard Company, Inc., is now represented in Washington, for upper Idaho and the Northwest territory, by Lloyd G. Backart. Mr. Backart's office is in Seattle at 700 E. 53rd Street.

Harry A. Winter has been named manager of the Los Angeles office of U. S. Steel Supply Company. Ralph I. Peterson has been designated as San Francisco representative for firm.

H. Bennett McDonald has been appointed district manager for electric appliance sales for Yale & Towne Manufacturing Company. The district assigned him includes Washington, Oregon, California, Nevada, and Arizona.

Norton P. Bosemer has been placed in charge of the Los Angeles office, 1489 Washington Blvd., of Tube Turns, Inc., Louisville, Kentucky.

New district warehouses have been opened in New York and Chicago by the Farr Company, 2615 Southwest Drive, Los Angeles, manufacturers of Far-Air Filters.

John T. Brittain has been appointed manager of sales of the California Wire Cloth Corp., a subsidiary of Colorado Fuel & Iron Corp., at Oakland.

C. Harry Snell has recently been transferred from the Bishop, Texas, Chemcel plant of the Celanese Chemical Corporation, division of Celanese Corporation of America, to become Western representative of the firm at the Los Angeles offices, 819 Santee Street.

Washington Brick & Lime Company has chosen R. F. Griffith, Spokane, as Oregon district representative, succeeding Glen Tidyman, resigned. Mr. Griffith's headquarters will be in Portland.

Ronald H. Dallas has been selected as sales manager of Maywood Glass Co. and Pacific Coast closure division of Anchor Hocking Glass Corporation.

The Market Forge Co. of Everett, Mass., named W. G. Ballantyne Company, 1215 N.W. Everett St., Portland, as its distributor for the states of Oregon, Washington and Idaho. Ballantyne also has offices in Seattle.

Victor Clarke, named Western sales manager for the Ralph L. Smith Lumber Co. of Kansas City, Mo., with offices in Portland. Mr. Clarke, long active in the lumber business in the Portland area and formerly with Dant & Russell, Inc., as Western sales manager, was appointed in connection with the Smith Company's announcement that it had purchased the Deschutes Lumber Company at Anderson, California, in a \$4,000,000 deal.

The Electric Products Co., Cleveland, Ohio, has established district offices at Portland, San Francisco and Los Angeles. William J. Cottrell, formerly sales manager for the power specialty division of the Johns-Manville Co., in charge of the Portland office; Donald T. Elliott, San Francisco representative and H. D. Easterbrook, formerly of Westinghouse, in the Los Angeles office.



Wm. J. Cottrell



Donald T. Elliott



H. D. Easterbrook



Robert G. Welch

Robert G. Welch will manage the new Kaiser Aluminum distributor sales program which involves the appointment of 23 distributors. Western firms which will act as distributors are as follows: Clingan & Fortier, San Francisco; Eagle Metals Co., Seattle, Washington; Eight, Inc., Salt Lake City; Gilmore Steel & Supply Co., San Francisco. The warehouse division of the Permanente Products Co., Los Angeles, confines its operations to supplying a group of metal jobbers in the Los Angeles area.

H. T. Riley, formerly vice-president and general manager of the Fresno Iron Works, Fresno, Calif., is now associated with Caswell & Co., foundry suppliers, in Los Angeles. Prior to going to Fresno, Mr. Riley was manager of the Quality Foundry and Manufacturing Co. of Los Angeles.

Harold R. Burt, sales and service engineer of Oakland, has been engaged by Jack & Heintz Precision Industries, Inc., as Western district sales and service representative of the electric motor and refrigeration divisions.

Columbia Steel Co., subsidiary of U. S. Steel Corp., announces the following sales executive appointments: C. S. Conrad, general manager of sales; W. B. Sawyer, Jr., of Alameda, assistant general manager of sales administration; Eric Barnett of Sausalito, assist-

ant general manager of sales distribution; C. L. Hamman of Palo Alto, promoted to general sales staff manager.

Carl Culver, Pacific Northwest shipping man, has been named owners' representative of the States Marine Corporation of New York territory covering Puget Sound, the Columbia River and British Columbia. Mr. Culver's headquarters will be in Portland.

Stuart Krentel, formerly Chicago manager of MacDermid, Inc., Waterbury, Conn., has been appointed West Coast manager in the new Los Angeles office of the company. His headquarters will be at 1011 S. Los Angeles Street. Mr. Krentel has been associated with the plating industry in production and in sales and service work since 1933.

The Coast Equipment Company of San Francisco has been purchased by the Nosman Equipment Company, a California corporation, with W. M. Nosman as president. Business will be conducted with the same personnel and under the trade name of Coast Equipment Co.

Leonard J. Rowley has been named traffic manager of Pacific Airmotive Corporation.

The Machinery Division of Dravo Corporation, Pittsburgh, announces the appointment of J. Carl Bowen as West Coast sales and service manager for the heating and air conditioning section of the industrial department, with headquarters in San Francisco.

Frye & Company of Seattle have designated W. Adams as sales manager and G. S. Eason as associate sales manager.

Gene Teague has been selected as Multnomah County, Oregon, dealer for Firebaugh three-wheel half-ton truck, by John A. Roman, Oregon distributor.

The Union Oil Company of California have designated Raymond I. Mahan as district sales manager of the Spokane district. He will be in charge of all sales and operational activities in northeastern Washington and northern Idaho.

Pacific Screw Products Corp. and the Deutsch Company, both Los Angeles firms, have a licensing arrangement with The Parker Appliance Company of Cleveland and Los Angeles to manufacture and sell the AN and basic Air Corps "811" flared-tube couplings embodying Parker patents.

Kingwell Bros., Ltd., San Francisco, manufacturers of bronze bearings and Western states representatives for Chrysler-produced Oilite bearings, have selected the following three new sales and service engineers: Edward L. Unger, southern California industrial area; Tore Franzen, San Francisco Bay area; William McFate, northern California industrial area.

F. D. Wallace and Associates, Inc., management consultants, and Anderson-Nichols & Company of Boston, New York and Los Angeles, have consolidated their Los Angeles staffs. C. H. Lynch, currently executive engineer with Anderson-Nichols in Los Angeles, is continuing in the same capacity.

James H. Spence has been named sales promotion manager of the Mobilift Corporation of 835 S.E. Main Street, Portland, Ore. Mr. Spence was formerly vice-president and general sales manager of the Slats-O-Wood Company, Inc., of San Antonio, Texas, and southeast district manager of Sturtevant division of Westinghouse Electric Corporation.

The Moran Plumbing Supply Company of Oakland have opened their new \$190,000 plant on 24th Street between Wood and Willow streets. The new plant occupies 89,000 sq. ft. with a building covering 34,000 sq. ft.

California Food Factors, San Francisco, have been named northern California sales representatives for Gray & Co., Portland.

NEW METHODS, MATERIALS, EQUIPMENT

That Will Help to Cut Your Production Costs

681

Here's How to Flip A 500-Lb. Barrel

With the Barrel Up-Ender, one man can flip a heavy barrel or drum weighing up to 500 pounds from its side to its bottom.



It is quickly attached to the barrel truck which carries the barrel after it is positioned by the Up-Ender. Thomas Truck and Caster Co.

682

New Cleaners For Welding Tips

A newly designed set of cleaners for acetylene welding tips in an aluminum case is announced by Thermacote Mfg. Co., Los Angeles 13. A standard set of 12 cleaners will clean 27 drill sizes from No. 74 to No. 49 while the special set cleans 19 drill sizes from No. 47 to No. 30.

The cleaners are specially designed to clean the tips without damaging the parts, thus insuring a long, straight flame for clean, slagless cuts.

683

Measure Speed With Hand Tachometer

Multiple range electric tachometers are now available as hand instruments for general purpose speed measurements in either revolutions per minute or feet per minute. With an accuracy of 1 per cent,

three separate ranges are provided on a 100 division, $3\frac{1}{8}$ -in. scale.

The desired range is selected by means of a simple switch and the instruments are fool-proof so that no damage results from selection of an improper range, changing ranges while in operation, or from over-speeding. Operating torque of the head is very small—approximately 1/20 ounce-inch. Metron Instrument Co., Denver 9, Colo.

684

Construction Details Improve Oven-Furnace

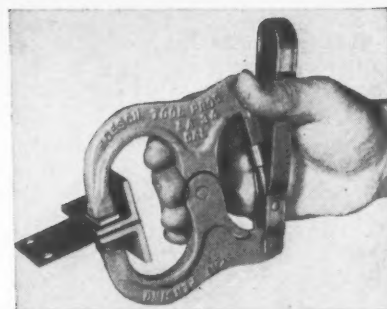
A modernized version of a high speed oven furnace has been so improved that it now features good uniformity of heat distribution, low heat loss and quick heat-up time. Suitable for use with manufactured and natural gas at three to six in. W.C., Butane and Propane at six and eight in. W.C., (service governor suggested for higher pressures) and air at 12 to 16 oz. pressures, these furnaces are especially recommended for smaller tool rooms and shops where the demands do not warrant elaborate and expensive heat-treating equipment. Eclipse Fuel Engineering Co., Rockford, Ill.

685

Quick Action Clamp Holds Three Pieces

Three pieces of material will be held absolutely immovable with the new quick-action clamp. The material is held with sufficient clearance top and bottom to fit over T's, rolls, angles, channels, flanges, etc., and will cut clamping and releasing time in half on holding jobs. Self-aligning jaws hold on flat or irregular surfaces. "C" clamp design takes less room. No extending handles or other cumbersome protrusions.

This clamp is valuable in welding shops, machine shops and assembling plants where easy access to work and fast action are desired.



Is said to be especially suitable for jigs in welding or assembling where work involves clamping. Requires only one hand to operate. Features adjustable toggle hand which allows jaws to open up to $2\frac{1}{2}$ inches and clamp up to $1\frac{1}{4}$ inches. Roesch Tool Products Co., Los Angeles 34.

686

Non-Slip Belt Has Teeth

Perfected after many years of research, a belt with rubber teeth that will not slip has been manufactured. Designed for use on machinery equipped with special pulleys grooved to fit the teeth, the new belt is said to be enormously strong and highly flexible. The belt is reinforced with steel cables embedded in oil-resisting synthetic rubber, and operation is declared virtually noiseless.

Known as the Gilmer Timing Belt, the new product will be made in various sizes to meet the requirements of machine designers. It is suitable for power transmission and synchronization. Wide usage is expected in the automotive and aviation fields and on machine tools, business machines and industrial equipment. L. H. Gilmer Division of U. S. Rubber Co.

687

Low Cost Alcohol Made from Rosin

Hydroabietyl alcohol is the name of the new low-cost resin alcohol made from rosin, one of the cheapest organic acids available.

Hydroabietyl alcohol is a viscous liquid at room temperature. It is colorless, tacky, and not miscible with water, in contrast to more commonly used alcohols. It has potential application in a wide number of industries including textile, rubber, adhesive, detergent, paint, varnish, and lacquer.

For many years the published research of laboratories both in America and Europe has disclosed a wide variety of valuable products that may be derived from hydroabietyl alcohol such as: resins, foamers, detergents, wetting agents, emulsifying agents, plasticizers, corrosion inhibitors, antioxidants, parasiticides, bactericides, and compounds highly stable to ultraviolet light. Hercules Powder Co., Wilmington, Delaware.

(Continued on page 94)

Ventilated Box For Uniform Cooling

A new heavy duty, all-steel ventilated box has been put on the market, which is designed especially for foundry installations where uniform cooling is a requirement. Can be used wherever there is a need for rapid, uniform cooling of hot metals.



Constructed of heavy gauge steel mesh on four sides and bottom, with an all-welded angle iron framework. Steel mesh affords visibility of contents at all times and assures rapid identification of parts without unstacking or moving boxes. Built with legs, casters, or rubber or metal wheels. Palmer-Shile Co., Detroit, Mich.

689

Soldering Attachment Reduces Rejects

A new soldering device which smoothly feeds solder at the touch of the finger-tip, clamps on to any standard electric soldering iron. By freeing one hand to manipulate parts, pliers, or screw driver, the new "Solder-Matic" saves temper, solder and time.

It reduces rejects, it is claimed, by enabling the operator to do a better job in crowded spots or awkward positions. By feeding exactly the amount of solder needed at the right time and place, the "Solder-Matic" also eliminates molten solder drippage.

This attachment fits any standard electric soldering iron. Nelpin Mfg. Co., Long Island City 1, N. Y.

690

Cemented Carbide Composition Withstands High Temperatures

A very hard metal that retains its strength and resistance to corrosion at high temperatures has recently been developed.

This is a special cemented carbide composition manufactured by processes similar to those employed in making the carbides now used widely for cutting tools and wear-resistant parts, but with unique properties.

It withstands temperatures that rapidly destroy conventional carbides and the best cast alloys; resists thermal shock much better than ceramics, and has specific grav-

ity about 1/3 that of tungsten carbide, and 2/3 that of steel.

Its unique properties suggest many practical uses. Resistance to oxidation and hot gases, together with abrasion resistance due to high hardness, make it suitable for high temperature structures, such as furnace parts, and guides for hot rolled metal. Its light weight and strength are advantageous for rotating parts exposed to high temperatures. Kennametal, Inc., Latrobe, Pa.

691

Vapotester Protects Against Combustibles

A supersensitive Vapotester for the determination of hazardous conditions due to the presence of combustible or explosive concentrations of flammable gases or vapors, is now on the market.

The basic principle of the Vapotester indicator is the measurement of increases in the resistance of a filament when exposed to a gas or vapor-air mixture as compared with a filament not exposed to such gas or vapor-air mixture.

This new model goes a step beyond the analysis of a combustible gas in terms of its lower explosive limit. It permits the operator to indicate gases in their toxic range. Davis Emergency Equipment Co., Inc., Newark 4, New Jersey.

692

Germicidal Lamp Destroys Bacteria

In as little as eight seconds, airborne bacteria will be destroyed by means of a new germicidal unit. This unit will be produced in two types: the first to kill airborne bacteria through indirect radiation and the second to destroy molds, bacteria virus and fungus through direct radiation on surfaces and in liquids.

Used indirectly and mounted above eye level, the new germ killer will have a wide variety of uses for purifying air in schools, hospitals, nurseries, homes, poultry houses, barns, restaurants, soda fountains, walk-in storage refrigerators, hotels, trains, elevators, physicians' and dentists' offices, canning plants, milk plants, libraries, theatres, banks, barber shops, and in fact all public gathering places.

Used directly it will destroy germs, molds and fungi on surfaces and in liquids in food processing plants, milk plants, bakeries, packaging plants, liquid dispensers, and over dish washing machines in restaurants, cafeterias and fountains, meat packing plants, and bottling operations and other businesses where food is handled.

The new Duro Test germicidal lamps incorporated in these units will be produced in two lengths—15 watts in 18 inches and 30 watts in 36 inches. Duro Test Corp., North Bergen, New Jersey.

693

Fluid Drive For Elevator Service

A fluid coupling device, identical with that used in some of the better automobiles and now used in elevators, has been introduced recently at the New York State Architect's convention.

This Gyrol fluid-drive elevator requires a less powerful motor, due to the fact that the motor starts under no load. When the car switch is closed, the motor starts and gains practically full momentum before the fluid coupling takes hold. No heavy starting current is required and the power costs are materially lower.

With fluid drive only a single switch is required for upward travel and another for downward travel. Without fluid drive, there would be a dozen or more switches to service, depending on the size of the panel. Warsaw Elevator Company, Warsaw, N. Y.

694

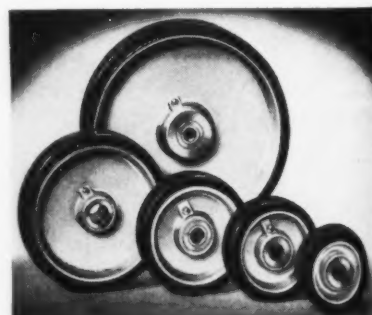
Weed Exterminator For Industrial Sites

A highly aromatic synthetic product, to be known as General Weed Exterminator, has been announced by General Petroleum. This new product, it is claimed, will destroy any weed common to industrial sites, farms, airports, railroad rights of way, or anywhere else that weeds exist. It may be applied to wet or dry weeds with equal effectiveness. General Petroleum Corp., Los Angeles.

695

Aluminum Alloy Wheels Economically Priced

A new line of aluminum alloy industrial wheels of compact design and in a range



of sizes from four to twelve inches in diameter, have been especially designed to fill the need for an economically priced, easy-rolling wheel of maximum efficiency.

Marketed under the trade name Airlite, the new wheels are available with either a molded-on grade A rubber tread or an all-aluminum tread. They are corrosive resistant and their special design permits easy, free rolling with maximum loading.

The manufacturer claims that the Airlite line is the lowest priced in the field, with

quality and performance equal or better than many more expensive wheels. Aerol Company, Los Angeles 21, California.

696

Hole Punching Unit Eliminates Problem

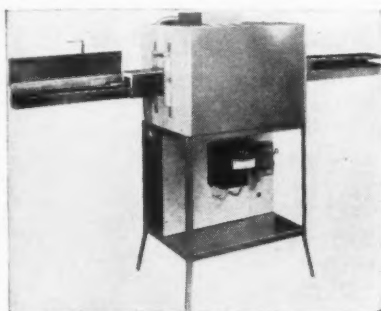
One of metal fabricators' most difficult hole punching problems has been eliminated by the new EJ hole punching unit with a center projection to carry the die. This makes it possible to punch a series of holes simultaneously in angles, channels and extruded sections.

Nothing is attached to the press run. The ram functions only to depress the punches. For complete information write for Catalog C to the Wales-Strippit Corp., North Tonawanda, N. Y.

697

Tunnel Kiln For Small Batch Production

A pusher type kiln recommended for small batch production work, firing of ceramic parts, and heat treating of small



parts on a production basis, has just been announced. Featuring an electric heating element providing a maximum temperature of 2200° F., this kiln is made ready for immediate operation by simply attaching the line to the fused switch box in the unit.

This pusher type kiln has small refractory trays which are pushed through the inside of the 33-inch firing chamber by means of a variable-speed drive. Pusher mechanism as well as provision for loading and unloading is self-contained.

In addition to small batch production and heat treating work, the kiln can also be used for firing small ceramic parts for any experimental or testing work in a small production basis. K. H. Huppert Company, Chicago 37, Ill.

698

Mechanical Relief Device For Transformer

A cover-mounted, mechanical relief device that will vent internal transformer pressures, caused by electric arc or overloads, more quickly and effectively than is possible by any present device that depends upon the rupturing of a diaphragm, has been placed on the market. Designed to fit any transformer with a 9-inch hand-hole opening, adapters can be used for larger openings if necessary.

It is claimed that this device will withstand full vacuum when filling the transformer with oil under vacuum on tanks designed for this method of filling. A locking method is also available so that the tank can be pressure tested in the factory or in the field. In most cases the device can be shipped in place on the transformer.

Tests have indicated that this device offers less resistance to escaping gases than diaphragm types of relief devices and, in consequence, pressures within the transformer do not build up to excessive values nor is oil vapor thrown as far when operating. Westinghouse Electric Corp., Pittsburgh, Pa.

699

Largest Battery Built For Industrial Trucks

The largest single-tray electric storage battery ever built for industrial trucks has been shipped to a steel producer to be used on a 30,000 lb. ram truck to handle coils of strip steel.

The battery, a 36 cell 31 AMH type, has a capacity of 1500 ampere hours at the six-hour rate, and weighs slightly more than seven tons. Gould Storage Battery Corp., Trenton, New Jersey.

700

Spotlight Work With Soldering Gun

Said to be a time-saving and money-saving device is the new type soldering gun with a spotlight tip. Placed between the terminals of the loop tip, the spotlight helps locate the connection to be soldered and keeps the work in plain sight. It goes in automatically when the current is switched "on" for heating.

Speedy five-second heat eliminates the long waiting time for the iron to reach the desired work heat and makes the gun excellent for intermittent service on such jobs as electrical control circuits, motor repair, and maintenance precision work.

Additional conveniences are the pistol grip handle with the weight well balanced, the trigger switch, and the long loop tip which enables the operator to get deep into the work. Weller Manufacturing Company, Easton, Pa.



701

Electrode Salt Bath For Heat Treat Process

A new design of the Ajax electrode salt bath furnace for interrupted quenching operations (cyclic annealing, austempering, and martempering) is shown above. This model is for use with the isothermal heat treat process. By utilizing TTT or "S" curve data now available for most steels, the isothermal process offers a tool of incalculable value for imparting physical properties to metal parts. Ajax Electric Co., Inc., Philadelphia 23, Pa.

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Find Individual Incentives Works Better Than Group

CHANGING from group incentives to individual incentives in one case increased average pay of the workers 28 per cent, reduced the company's direct labor cost 12 per cent and the overhead approximately 19 per cent, reports Edgar Williams, president of the Los Angeles chapter of S.A.M. and Western representatives of Anderson-Nichols & Company, engineering management firm.

The company had 15 men working as packers on a conveyor line. The product was business forms made to customer order, and the "packs" occurred in a practically unlimited combination of widths, lengths, and thicknesses.

These 15 packers were working on a straight piecework plan utilizing the group bonus method of payment. The group efficiency over a long period of time had averaged 110 per cent, for which the packers had received 10 per cent incentive pay.

Production requirements of the company exceeded the capacity being attained by the packers, and the floor space available for packing was being fully utilized. A major layout change would have been required to add more packers.

The piecework rates were established by the standard data method, but the standards had been in effect for several years and the basic date used in establishing the standards was in such condition that it was impossible to reconstruct with any degree of accuracy the conditions that existed at the time the standards were established.

After restudying the operation new standards were established, again using the

standard data method. The new standards were 12 per cent lower than the old ones. Although this was probably due to an accumulation of minor methods changes, it was not possible to verify it because of the inadequate description of conditions that existed at the time of the original studies.

It was recommended, at this time, that the operation be changed from the group bonus to the individual plan since there was no definite community of interest among the operators. Each packer worked independently and could perform his function without aid from other packers.

Operator efficiencies at the end of four weeks were:

- 1 operator at 200 per cent
- 6 operators at 104 to 150 per cent

- 4 operators at 130 to 140 per cent
- 1 operator at 120 to 130 per cent
- 2 operators at 110 to 120 per cent
- 1 operator at less than 100 per cent

The result was an increase of approximately 35 per cent in production obviating an expensive layout change. Since the company did not require this amount of increased production, the two low producers were transferred to other work.

Average take-home pay of the packers increased approximately 28 per cent. The company's direct labor cost was reduced 12 per cent, and the overhead cost approximately 19 per cent.

This savings can be attributed to the change from group to individual incentives. In this instance, which is most common, the productivity level of the group was established by the low producers who either were not willing, or not capable of producing at a level consistent with the abilities of the majority of the workers.

Raw Materials Used in the West

THE 11 Western states used 6.3 per cent of all raw materials consumed in 1946 in the United States for vegetable oil production. This amounted to more than 612,000 tons. The information was obtained from the U. S. Census Bureau by G. L. Fox, manager of the industrial department of the San Francisco Chamber of Commerce.

Following are the percentages of national totals of raw materials consumed in the West: olives, 99.7 per cent; copra, 77.6 per cent; cottonseed, 7.0 per cent; flaxseed, 6.7 per cent; soy beans, 2.0 per cent.

Below are two tables breaking down the figures in detail for animal and vegetable fats and oils:

FACTORY CONSUMPTION AND FACTORY STOCKS
(Tons of 2,000 pounds)

Item	1946 Factory Consumption	1946 Factory Stocks Dec. 31, 1946
Cottonseed	218,908	123,143
Copra	215,805	41,849
Olives	7,294	1,654
Flaxseed	54,279	10,355
Soybeans	96,716	.....
All other	19,744	1,185

PRODUCTION - CONSUMPTION
(In thousands of pounds)

Item	Factory Production 1946	Factory Consumption 1946	Stocks Factory & Wholesalers 12/31/46
VEGETABLE OILS			
Cottonseed, crude	70,923	84,092	1,432
Cottonseed, refined	78,108	128,666	8,456
Peanut, crude	(*)	801	140
Peanut, refined	853	7,374	570
Coconut, crude	272,785	42,038	39,759
Coconut, refined	19,408	12,836	1,248
Corn, refined	269	476	115
Soybean, crude	26,636	91,120	6,857
Soybean, refined	84,844	94,151	4,333
Olive, edible	2,306	5	220
Linseed	50,642	48,952	19,376
China wood or tung .....	.....	3,255	2,611
Oilseeds .....	.....	1,256	235
All other	12,781	12,063	1,592
ANIMAL FATS			
Lard, rendered, incl. neutral lard and rendered pork fat	65,264	3,117	5,910
Tallow, edible	13,297	8,598	884
Tallow, inedible	140,551	140,347	15,454
Neat's-foot oil	70	10	15
GREASES			
Greases (incl. garbage and house), other than wool	23,290	17,111	2,204
Wool grease .....	.....	324	140
OTHER PRODUCTS			
Glycerin, crude (100% basis)	13,834	12,630	1,400
Glycerin, high gravity and yellow distilled (100% basis)	7,332	3,455	1,114
Glycerin, chemically pure (100% basis)	4,076	2,526	421
Hydrogenated oils, edible	138,388	120,458	2,305
Hydrogenated oils, inedible	18,238	9,994	570
Shortening	119,070	252	4,583
Winterized vegetable oils	47,868	.....	1,000

*Not shown to avoid disclosure of individual operations.

• Largest tire retreading plant in the world is the Thompson Tire establishment in San Francisco. Equipped with the largest retreading mold, aircraft and earth-moving equipment tires are among the specialties it takes care of.



HELPFUL LITERATURE

For the plant operator
who wants to keep informed

2276

Educational Welding Bulletin Available—

Two bulletins issued recently are now announced as special reprints to meet demands for them as reference sources by those interested in production and maintenance welding at low base metal heat. One bulletin, entitled "Arc Welding Problems Successfully Solved," covers welding cast-iron, low and high alloy steels, stainless steel and tool steels to high carbon steels; welding special manganese parts, elimination of undesirable characteristics, and other problems occurring in everyday welding. The other bulletin, "Another Major Advance in Gas Welding," describes the use and applications of various new developments in the field of special flux-coated alloys known as EutecRods, for steel, cast-iron, brass and aluminum. Correct welding procedures are illustrated. Both reprints available to readers of this magazine from *Eutectic Welding Alloys Corporation*, New York.

2277

Why Not a Tree Farm?—The timber future of the Pacific Northwest is described pictorially in a 26-page booklet, "West Coast Tree Farms." Told in full through the medium of selected photographs plus a series of drawings by Arthur Bimrose, Oregon artist, is the story of the origin and development of the 2,524,693 acres of Tree Farms in Western Oregon and Washington. The booklet recalls that the Tree Farm movement, which originated in the Douglas fir region of Washington and Oregon, is now nationwide, with more than 14,000,000 acres of Tree Farms in 17 states. *West Coast Lumbermen's Association*, Portland, Oregon.

2278

How to Finance Your Plant—"Modern Financing Methods" is a brochure published by the C.I.T. Corporation describing financing for industrial purposes. Services described in the booklet can be used either singly or in combination as a flexible means of obtaining additional working funds in any amount required. A wide variety of situations, from re-equipping a complete plant, or acquiring a single piece of equipment, to refinancing a business, can be dealt with successfully and economically through these modern methods. *C.I.T. Corporation*, New York, New York.

2279

Personnel Management and Industrial Relations Study Course—Herbert G. Heneman, Jr., is the author of "Personnel Management and Industrial Relations Guided Study Course," and Dale Yoder authors the pamphlet, "Labor Management Relations Act, 1947," just published. Mr. Heneman is research associate and assistant director of the Industrial Relations Center at the University of Minnesota and has worked for many years with Dr. Yoder. "Study Guide," written by Mr. Heneman, coordinates material in the book and the pamphlet by use of instructions and assignments. *Prentice-Hall, Inc.*, New York, N.Y.

2280

Here's New B.C.I. Technical Reports—The Bituminous Coal Industry's research agency have published Technical Report No. VII, entitled "Application of Overfire Jets to Prevent Smoke From Stationary Plants." This report is written by Richard B. Engdahl and William

S. Major, and may be obtained for 25 cents from *Bituminous Coal Research, Inc.*, 912 Oliver Bldg., Pittsburgh 22, Pa.

2281

Tube Fitters Manual—Concise tables of "Troubles—Causes—Remedies" are featured in an authoritative handbook on the selection, sizing, layout, and installation of metal tubing circuits, just published. Called the "Tube Fitter's Manual," the handbook makes available in printed form for the first time anywhere all basic data underlying the specialized techniques required for the design and speedy installation of long-life, leakproof systems. The 76-page manual should be particularly useful to personnel of design, assembly, and plant engineering departments of companies throughout industry generally. *Parker Appliance Co.*, Cleveland, Ohio.

2282

Answer to Cutting Tool Problems—Bulletin 160M presents several products of the Midget Mill group, which will be of special interest to those who use cutting tools ground-from-the-solid. It is claimed that the new Micro-Mills listed in this bulletin are finishing with one or two passes jobs that usually require two or three wheel dressings and multiplied passes per dressing with internal grinding wheels. The bulletin lists ground carbide hand files and ground carbide die machine files. It also contains data on the various patterns of cut, tooth characteristics and pitches of teeth, and gives information on complete re-grinding service. *Severance Tool Industries Inc.*, Saginaw, Mich.

2283

Reprint From Welding Journal—"Oxygen Cutting of Steel at Elevated Temperatures," by J. F. Kiernan and J. S. Sohn, now available in reprint form, originally appeared in *The Welding Journal*. The article concerns itself with the oxygen cutting of steels at rolling mill temperatures. It also contains data which has been derived from over 3000 controlled cutting tests. *Air Reduction Sales Co.*, New York 17, N.Y.

2284

Hard Overlay Welding For Equipment Salvage—For the first time specific procedure involved in industrial equipment salvage welding with various gas and arc rods for producing hard overlay at low temperature, is described in a technical bulletin. Several interesting new alloys for the hard overlay process are featured analytically by means of charts, data, and photographic illustrations of the case history type. Broad service classifications have been designed to make this bulletin a handy reference for those interested in the economics of repairing worn equipment and in solving problems of abrasion, impact, cutting wear, corrosion, and friction. *Eutectic Welding Alloys Corporation*, New York 73, N.Y.

2285

Cross Section For Metal Working Industry—Sixty-six case histories of various machined parts are described in the 68-page book entitled "A Cross Section of Work Performed on Drilling, Boring, Facing and Tapping Machines for the Metal Working Industry." A full page is given over to each case history which provides blueprints and a complete explanation of how work is accomplished; production; number of holes and operations; sizes of holes; limits and material. Many of the jobs shown require meet-

ing the demand for exceptionally high production, others to hold very close limits, close hole centers, or a combination of these at lowest hole cost. *National Automatic Tool Co., Inc.*, Richmond, Indiana.

2286

Catalog on CT Shaftless Motors—An illustrated publication describing the line of type CT rolled shell, shaftless squirrel cage induction motors for built-in drives with details of electrical and mechanical features, mounting, ventilation and applications, now available from *The Louis Allis Co.*, Milwaukee 7, Wis.

2287

Steel Sash Catalog Ready—An illustrated, 32-page Lok'd Bar steel sash catalog, featuring design and construction features, published by Hope's Windows. Dimensions and physical data are shown by full scale diagrams including the sections of frames, muntins and mullions and details of pivoted and projected ventilators. Full scale diagrams of installation details show application to brick and plaster, concrete and structural steel construction. Size range is shown by diagrams giving width and height of sash, number of lights and ventilators in a standard sash. Window opening dimensions are tabulated. Hardware details are illustrated by photographs. Catalog obtainable from manufacturer, *Hope's Windows, Inc.*, Jamestown, N. Y.

2288

Hose For Heavy Duty in Mines—A descriptive folder on air drill hose designed for heavy-duty service in mines and quarries where resistance to hot oils and abrasion is especially important. The folder tells of many uses for the two brands of hose—Monarch and Ajax—and describes their construction. Copies of folder obtainable from *Hewitt Rubber Division*, *Hewitt-Robbins, Inc.*, Buffalo 5, N. Y.

2289

Three New Bulletins on Automatic Machines—Three bulletins describing the "Dialmatic" automatic screw machine; and two models of a diecasting machine are available upon request, from the manufacturer. The "Dialmatic" is a single spindle, five-hole turret, equipped with an electric feed drive and can be used either as a bar machine or a chucker. The diecasting machines are models 400 and 200. *The Cleveland Automatic Machine Co.*, Cincinnati 12, Ohio.

2290

Technical Information on Shear-Speed Shapers—Various splines, cams, sprockets, gears, clutches, ratchets and miscellaneous external shapes may be rapidly produced on the shear-speed shapers, according to this brochure. With this machine it is feasible to form almost any external shape that can be produced internally by broaching. It is only necessary to design the formed tools used in the shear-speed so that when assembled, they will produce the desired external shape. Complete specifications for the four available models, together with descriptions of the coolant lubrication systems, etc., are included. *Michigan Tool Co.*, Detroit 12, Mich.

2292

Design For Rotary Kilns—A bulletin showing how efficient design of rotary kilns is vital to the economical operation of wet or dry process Portland cement plants. Increasing use of long, multi-support rotary kilns has brought about the development of easily-aligned, two-roller carrying mechanisms to support them. Their design and construction are described in the booklet along with that of kiln drives, various types of feeders, completely centralized kiln control equipment, air-quenching and rotary coolers, dryers, and furnaces. This is bulletin No. 07B6368. *Allis Chalmers Mfg. Co.*, Milwaukee 1, Wis.



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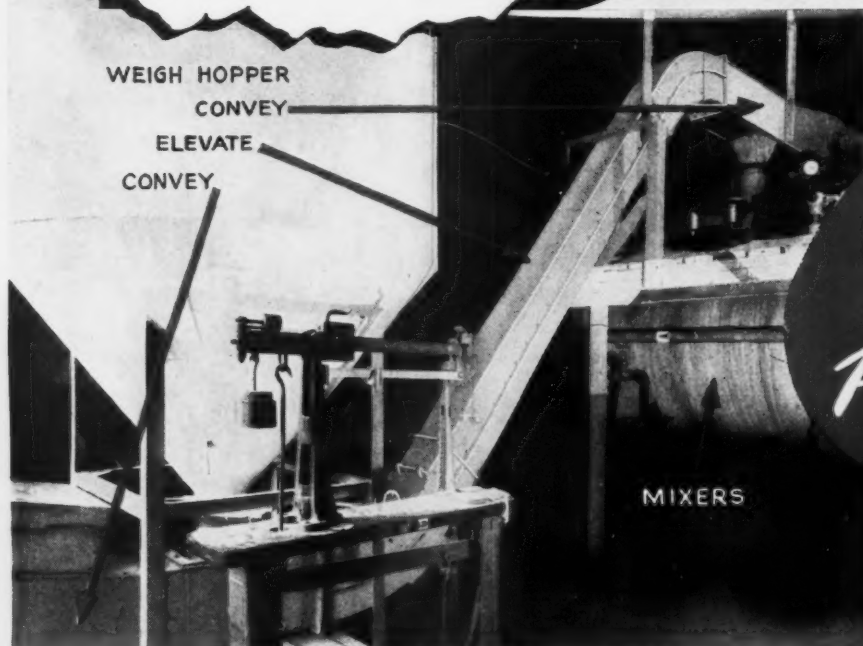
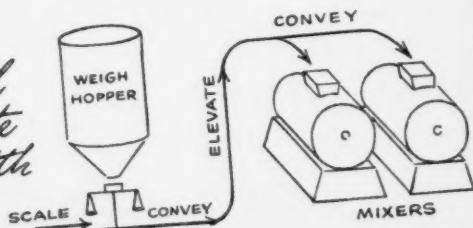
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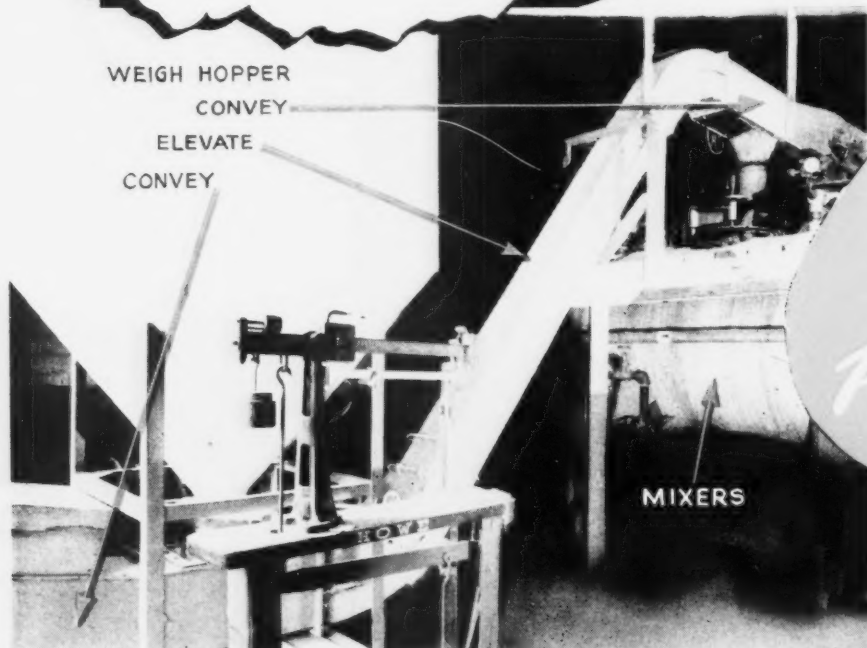
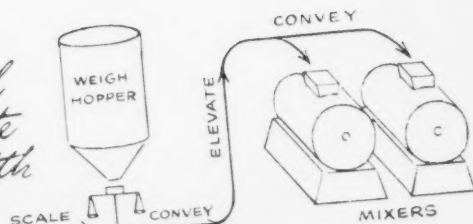
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